

EXCLUSIVE

The First Test: Macworld
Lab and the Dual-1.25GHz
Power Mac G4, page 74

www.macworld.com

The Mac Product Experts

November 2002

Macworld

GET THE MOST FROM OS X 10.2
WITH OUR COMPREHENSIVE TIPS

JAGUAR SECRETS

Expert Advice from David Pogue
Christopher Breen's Hidden Gems
Great Productivity-Boosting Tips
Up-to-Date Troubleshooting Guide

Plus | Dynamic Web Publishing | Digital-Video Cameras | FileMaker Pro 6 Reviewed

APPLE'S LATEST

Reviewed: New Dual-G4 Power Macs,
the Xserve, and QuickTime 6 Pro

It's like getting a whole new Mac for

Presenting Jaguar, the latest version of Mac OS X.

Featuring a rock-solid, UNIX-based core, Apple's legendary ease-of-use and over 150 remarkable new innovations. Here are just a few.

iChat. Chat with your friends in real time using Apple's AOL-compatible instant messaging.

Address Book. Enter all of your contact information just one time and access it from other applications with ease.



\$129.

Sherlock 3. Find stock quotes, maps, restaurants and more on the Web, all without opening a browser.

Mail. Control all your email accounts from one inbox. A new breakthrough filter eliminates junk mail before you ever see it.




apple.com/macosex 1-800-MY-APPLE

© 2002 Microsoft Corporation. All rights reserved. Microsoft, Entourage, and the Entourage logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Apple, the Apple logo, and Mac OS X are either registered trademarks or trademarks of Apple Computer, Inc.



Macs and PCs have never been so compatible.

Microsoft® Office v. X makes Macs and PCs more friendly. It lets Mac users effortlessly open, share, edit, and save any Office file, to make working with PCs a breeze. Complete with easy-to-use, exclusive Mac tools that simplify complex tasks. And it's built specifically for Mac OS X, so it's the most reliable, stable, easygoing Office yet.  www.officeformac.com to download a free 30-day trial of Office v. X today.

Microsoft



Entourage

PowerPoint

Excel

Word

Microsoft
Office:mac
v.X

Looking for the best digital photos?
Follow the leader.



YOU'VE GOT TO SEE IT IN

EPSON

COLOR.™



Print your photos from memory cards* or any Direct-Connect-Compatible (DCC™) digital camera. Then save them directly to an external USB Zip drive – all without a computer.



View pictures, layouts and cropping options without a computer screen using the optional Color Preview Monitor (\$79).



Crop, resize and select from various BorderFree™ templates (4x6, 5x7, 8x10) using the control panel. Then, save your favorite settings and recall them with Epson's exclusive One Touch button feature.



Leave the printer unattended while it prints and trims your photos automatically, using an exclusive built-in cutter and attachable roll paper holder.

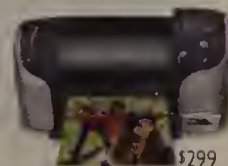


Get brighter colors, sharper detail and the most lifelike skin tones from a superior 6-color Photo Ink system with true black, 4-picoliter droplets and up to 5760 x 720 optimized dpi.



Ensure the quality of your prints with Epson's PRINT Image Matching™ (P.I.M.) technology – which makes automatic color corrections and adjustments when used with any P.I.M.-enabled digital camera.

Why do so many digital camera owners look to Epson for all their printing needs? Because only Epson makes photo printers designed to work specifically with digital cameras. For images with more color and detail than ever before. Which means now the image quality that could only be found in a professional photo lab is yours to create – right at home. As you can see, when it comes to digital pictures, no other photo printer comes close to giving you the quality and convenience you get with this printer. For more info, call 1-800-GO-EPSON or visit epson.com.



\$299
Epson Stylus Photo 925

*Supports Compact Flash type I and II, Memory Stick, Smart Media, Secured Digital, MultiMedia and Microdrive (optional Ziio card reader needed for Secured Digital and MultiMedia). Epson, Epson Stylus and PRINT Image Matching are trademarks/registered trademarks of Seiko Epson Corp. BorderFree is a trademark of Epson America, Inc. All other trademarks are properties of their respective companies. © 2002 Epson America, Inc.

OPINION

11 From the Editor's Desk

RICK LEPAGE

The truth about Apple's new dual-G4 Power Macs is somewhere between hype and hysteria.

17 Feedback

Readers respond.

128 Ihnatko

ANDY IHNATKO

Steve Jobs for mayor? Sure, if iSync and Rendezvous are big hits.

MAC BEAT

- 22 Free—e-mail apocalypse, Photoshop plug-ins for OS X, iCal versus other calendaring and PIM products, the CoolMac keyboard, and an interview with Intuit's David Story on QuickBooks' return to the Mac.

SECRETS

86 Go Dynamic with GoLive

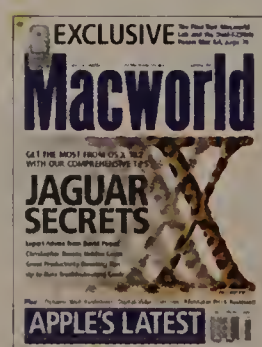
GLENN FLEISHMAN

Add dynamic content to your Web site—we'll show you how to connect Adobe GoLive 6 to a MySQL database server.

90 Mac 911

CHRISTOPHER BREEN

Force-quit the Classic environment from the Dock, rename directories without confusing applications, command OS X's Terminal application, format with Unix File System, and decide whether you can live on OS X alone.



On the Cover
Photo courtesy of
Apple Computer.

November 2002

www.macworld.com

Macworld

Incorporating MacUser

COVER STORY

60 Tame Jaguar

DAVID POGUE

There are some things in life that are beyond your control, but your operating system shouldn't be one of them. From little-known shortcuts to hidden tools, we show you how to work the latest version of Mac OS X.

FEATURES

70 Apple's New Dual-G4 Macs

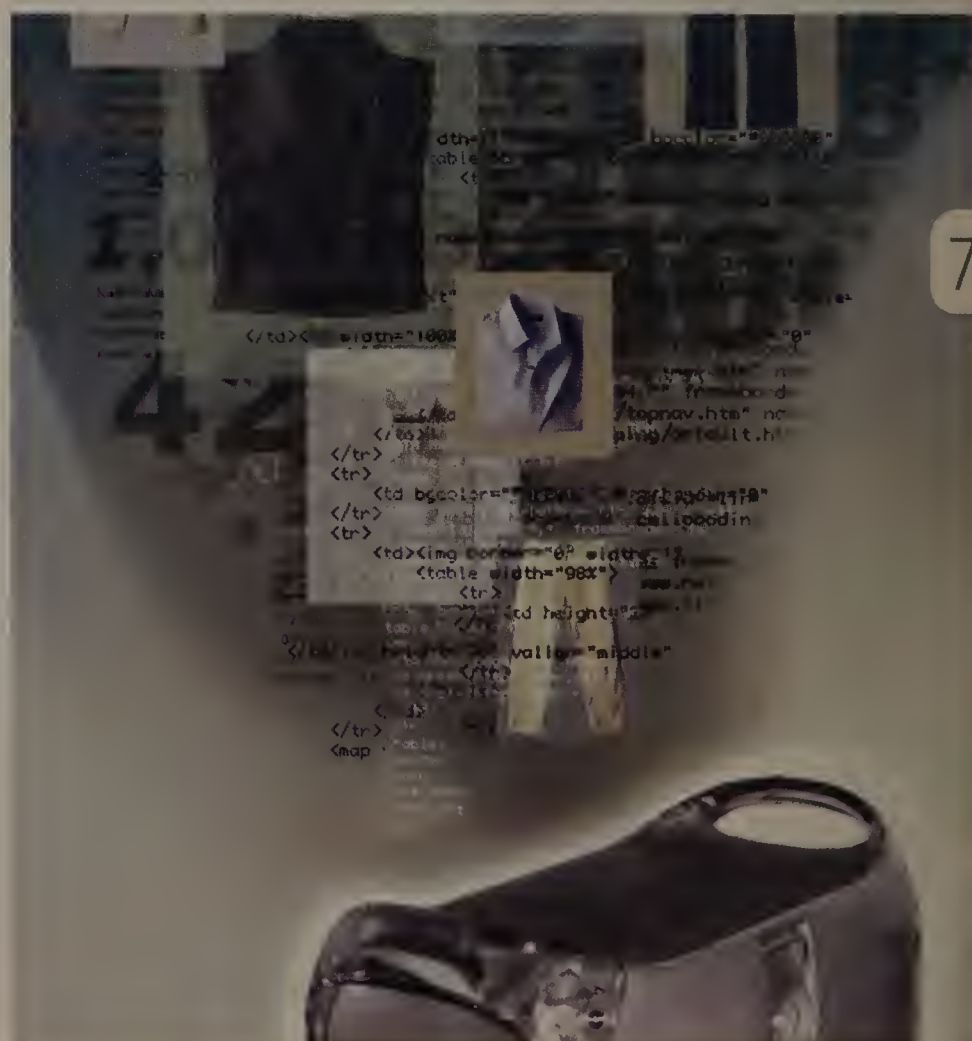
JONATHAN SEFF

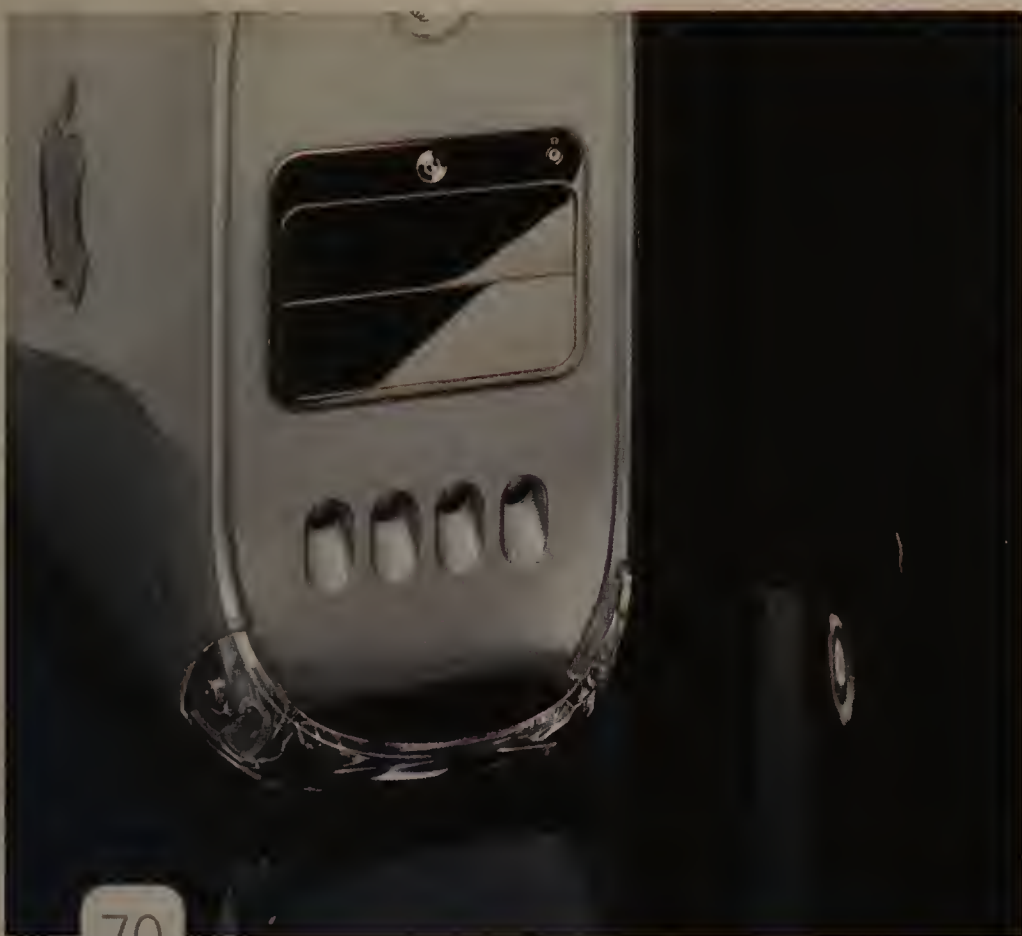
Apple's latest Power Macs sport two processors and new architecture. We dissect them and rate the two shipping models.

78 Serve It Up

SCOT HACKER

Mac users no longer have to take a backseat when it comes to designing and maintaining high-powered, database-backed Web sites. We'll step you through the process of installing an open-source server and database.





REVIEWS

- 34 **Network server**
★★★★½ Apple Xserve
- 35 **Database software**
★★★★ FileMaker Pro 6
- 36 **Multimedia application**
★★★★½ QuickTime 6 Pro
- 37 **Relationship-finding software**
★★★ Six Degrees
- 38 **DV camcorders**
★★★★½ Canon Optura 200MC
★★★★ JVC GR-DVM96U
★★★★ Sony DCR-PC120BT
★★★★ Sony DCR-TRV50
- 40 **Digital video recorder**
★★★★½ EyeTV
- 41 **Video-editing software**
★★★★½ Avid Xpress DV 3.5
- 42 **Music-sampling and -synthesis tool**
★★★★ Reason 2.0
- 44 **Network analyzer**
★★★★½ NetMinder Ethernet 5.0
- 45 **Mathematics software**
★★★★½ Mathematica 4.2
- 46 **E-mail-filtering program**
★★★★½ Spamfire 1.2
- 47 **3-D-animation software**
★★★★½ Carrara Studio 2
- 48 **iMovie plug-ins**
★★★★½ Slick Transitions and Effects Volume 3
★★★★ Slick Transitions and Effects Volume 4
- 49 **Virus-protection software**
★★★★ Norton AntiVirus 8.0 for Macintosh
- 50 **Music player**
★★★★½ Apple iPod 20GB
- 50 **Dock-replacement utility**
★★★ WorkStrip X
- 53 **Reviews in Brief**
 Bravo Effects and Echo Transitions, Kensington StudioMouse, MacJournal 2.1, Pantone Color Cue, WeatherPop Advance 1.5, and Who's There Firewall Advisor 1.2.
- 55 **The Game Room**
 PETER COHEN
 From World War II battles to horror-movie monsters, we've got you covered.

Buy now
SAVE \$1,000*

EYE-PO

There's a Xerox network printer that
the page at a stunning 22 ppm.

With Xerox color, details pop and get noticed. The Xerox Phaser® 7700 tabloid color laser printer will surprise you in countless ways. It not only prints 22 ppm, color or black &

white, but speeds out your first color page in just 13 seconds. It prints up to 11 x 17 full-bleed, with 1200 dpi for the photographic color quality you and your clients demand. And PhaserMatch™

©2002 XEROX CORPORATION. All rights reserved. XEROX®, The Document Company®, the digital X®, Phaser®, There's a new way to look at it!™ and PhaserMatch™ are trademarks of XEROX CORPORATION. *Estimated US retail price. Offer good on new Phaser 7700 tabloid color laser printer purchased between August 1 and October 31, 2002. Rebate must be claimed via an online e-bate form located at www.xerox.com/officeprinting/ebate. This offer cannot be combined with any other offer. Allow 4-6 weeks for delivery. This is a limited time offer. Xerox must receive the completed claim and a copy of the invoice prior to November 30, 2002. Void where prohibited by law. US and Canadian customers only. Xerox Resellers are not responsible for this offer.



delivers vivid color that leaps off
There's a new way to look at it.

Color management software ensures the colors you
want are what you get. It's just what you'd expect
from one of the full line of Xerox network printers.



Xerox Phaser 7700
~~\$6,999*~~
\$5,999*

Reseller price may vary *\$1,000 or \$1,500 CND. This rebate offer is valid for end users
other Xerox end user incentive. Xerox will mail the eligible rebate check directly to the end user
eligible. All claims subject to Xerox final review and approval. Applicable tax, if any, is the sole responsibility of the end user

To see what a difference detailed color can make,
simply give us a call at 1-877-362-6567 ext. 1875
or visit us at xerox.com/officeprinting/frog1875

THE DOCUMENT COMPANY
XEROX®

Choose 101 at www.macworld.com/getinfo

Recordable DVD from the leader in digital media.

Perfect for those who need their space.

When it comes to data-intensive storage, two things come to mind: Memorex and DVD. Why Memorex DVD? Over the past two years, more people have trusted and purchased Memorex optical media than any other brand in the world. And with a complete line of DVD formats, each offering 4.7 GB of space, we can help you transfer or store anything off your hard drive—even full-length videos. So if mammoth capacity, quick access rates and bulletproof reliability sound like the solution to your storage problems, we suggest you log onto www.memorex.com. Because Memorex DVD is—you guessed it—BIG.



Memorex®
Is it live or is it Memorex?™

Getting to the Bottom of Apple's New Power Macs

Testing Our Resolve



THERE WAS QUITE A BUZZ ON THE INTERNET AFTER APPLE announced its new Power Mac G4s in August. A few Web sites published test results, claiming that the midrange model, with two 1GHz processors,

wasn't any faster than the previous model (which also had twin 1GHz chips), despite the purported faster bus and subsystems, DDR RAM, and other enhancements to the new desktop computers' architecture. The conclusion many people came to was that Apple was lying about any real advances in the new machines—which is a pretty serious allegation. But in fact, this is just an instance of marketing hype running up against users' expectations; the reality, as always, lies somewhere in the middle.

As you'll see in this month's feature "Apple's New Dual-G4 Macs," our test results corroborate the Web-site reports: in many of our standard tests, the new dual-1GHz Power Mac wasn't any faster than the previous dual-1GHz model. Of course, the new one now makes up the middle of the Power Mac line; the old one was at the top of the line (with twice as much speedy Level 3 cache RAM) and, when it debuted earlier this year, cost \$500 more than the new system. The fact that the new model has two hard-drive buses and two optical-drive bays is also a plus, although this is offset somewhat by the higher cost of DDR RAM. But in the end, I see these new systems as an improvement.

The new high-end model, with two 1.25GHz PowerPC G4 processors, wasn't shipping when we wrote our review, but Apple did let us run our benchmark tests on a preproduction model so we could get a sense of the potential speed increases at the top of the Power Mac line. We were pretty impressed with what we saw, and we think that Mac users who are always chasing after the fastest Mac system available will be, too. But understand that we were able to review and rate only the two lower-end Power Mac models this time around. We'll review and rate the dual-1.25GHz machine after it ships, which *should* be by the time you read this.

Dealing with Changes

Apple claims that these new Power Mac systems' important architectural changes offer tangible benefits to end users—and in our look at the new systems, Jonathan Seff thoroughly explains where and why users will see improvements.

Testing hardware is a tough task, and there are plenty of problems you must confront if you want to

do it right. Architectural changes, and software and operating-system updates, make it nearly impossible to amass a database of tested systems that can be compared with one another over time.

What's even harder is determining which tests make sense, especially when systems change so dramatically. A test that was reasonable two years ago might now be superfluous, and a new test may be needed to demonstrate how system changes affect performance. We're constantly on the lookout for new tests (or modifications to old tests) that can add more pertinent information to a review.

In our review and analysis of these important new systems, we've attempted to cut through the hype and clearly lay out the benefits of Apple's changes. If you're looking to purchase a new desktop Mac, we hope that you'll walk away understanding Apple's motives for the upgrade—and that this information will help you decide whether now is the right time to buy.

Jaguar Unveiled

If you're a Mac user, and as long as you don't mind crowds, the place to be at midnight on August 23 was at an Apple Store (or one

of the independent Mac retailers scattered about the country). At the Palo Alto Apple Store, the one nearest Apple's headquarters, there were reportedly 3,000 people queued up, ready to buy Mac OS X 10.2 (or Jaguar), along with new Macs, iPods, and assorted digital-hub goodies.

If you've got Jaguar up and running, you'll definitely want to check out this month's feature on mastering the new OS ("Tame Jaguar"). Longtime *Macworld* contributors David Pogue and Christopher Breen have each come up with a boatload of tips and tricks that will help you maximize your productivity in OS X 10.2. □

Testing hardware is a tough thing, and there are plenty of problems you have to confront if you want to do it right.

Let me know what you think about the new Power Macs, *Macworld* in general, or anything else Mac-related. Drop me an e-mail (rick_lepage@macworld.com) or join in the discussions in our forums (www.macworld.com). To sign up for our weekly e-mail newsletter, which includes exclusive commentary and tips on hot topics, as well as reports on key new products, click on the Newsletters tab on our home page.

DAVE[®] v4

**NOW, MORE FEATURES
FOR THE SERIOUS MAC USER!**



Compare!

- Shares files and printers between Macs and PCs
- Supports Microsoft standard NTFS file format
- Provides three security options
- Offers fully integrated and efficient browsing
- Insures compatibility with Services for Macintosh
- Provides NT Domain Login

**“DAVE
SAVED MY
SANITY”**

IT Analyst Timothy Hixon, Los Rios Community College System explained, “We didn’t have time to learn another network operating system. The Macs needed to fit seamlessly and efficiently into our district’s computer network, which used Windows NT file servers. DAVE was the answer.”

**“DAVE not only supports
Macintosh computers still running
OS 9, it enhances Jaguar’s SMB
capabilities for the advanced and
professional user”**

SHARE FILES AND PRINTERS - Mac/PC, PC/Mac

**“DAVE is, without any
doubt, the best solution for
integrating your Mac into a
PC environment.”**

-Univers Macworld



Macworld



www.thursby.com

**THURSBY
Software**

*and print
The File Share Folks™*

Macworld

VP of Content/Editor in Chief Rick LePage
Editor Jason Snell
Managing Editor Jennifer Werner
Executive Editor, Macworld.com Lisa Schmeiser
Deputy Managing Editor Charles Purdy
Senior Features Editor Terri Stone
Senior News Editor Philip Michaels
Senior Reviews Editor Jennifer Berger
Test Manager, Macworld Lab James Galbraith
Associate Editors Kelly Lunsford, Jill Roter,
Jonathan Seff
Copy Editor Sue Voelkel
Editorial Intern Zach Frechette

Contributing Editors David Blatner, Henry Bortman, Christopher Breen, Adam C. Engst, Bruce Fraser, Jim Heid, Andy Ihnatko, Ted Landau, Deke McClelland, Scholle Sawyer McFarland, Tom Negrino, David Pogue, Stephan Somogyi, Franklin N. Tessler

Art Director Jennifer Steele
Design Associate Alissa Mach
Design Consultant Ellen Sherrod
Prepress Consultant Stephen Sugg
Design Intern Claudia Müller

News Director, MacCentral.com Jim Dalrymple
Senior Editors, MacCentral.com Peter Cohen, Dennis Sellers

International Editors Matthew J.C. Powell, Australia; Bernard Le Du, France; Sebastian Hirsch, Germany; Enrico Lotti, Italy; Yoshio Moriya, Japan; Tomasz Bitner, Poland; Daniel de Blas, Spain; Nils Holmlöv, Sweden; Engin Gedik, Turkey; Simon Jary, United Kingdom

President and CEO Colin Crawford
VP/Chief Operating Officer Stephen Daniels
Director of Finance Eos de Feminis
Accounting Coordinator Ronda Bittner
Senior VP, Human Resources Richard Willoughby
Human Resources Director Kate Coldwell
Human Resources Representative Julie McKie
IT Director Sean Greathouse

VP of Sales/Publisher Steve Plevin (415/243-3509)
Associate Publisher, East Cynthia Ramsey (973/243-1197)
National Accounts Manager Paul Bonarrigo (508/533-4020)
Account Executive Jo Zottarelli (631/277-4134)
Western Advertising Director Sara Culley (831/438-B40B)
Sales Assistant Franck Zamora (415/243-3628)
Showcase Account Manager Niki Stranz (415/243-3664)
Showcase Account Manager Carol Johnstone (415/243-3691)
Online Sales Manager Doug Detlefsen (415/243-3598)

Senior Marketing Manager Sharon L. Cordesse
Sales & Marketing Coordinator Kasey MacMullen
Marketing Intern Michael Hacke

Production Director Steve Spingola
Prepress Manager Alan Anzalone
Booking and Billing Manager Ricardo Sandoval
Ad Coordinator Megan Matteoni

Senior Web Producer Christina Gonzales
Online Production Manager Ron Neal

November 2002, Volume 19, Issue 11
Macworld is a publication of Mac Publishing, L.L.C. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, MacUser, MacWeek, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, The Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, Buyers' Tools, Streetwise Shopper, and Conspicuous Consumer are registered trademarks of Mac Publishing, L.L.C. Apple, the Apple logo, Mac, and Macintosh are registered trademarks, and MacLetter and PowerBook are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 2002 Mac Publishing, L.L.C. All rights reserved.

Choose 124 at www.macworld.com/getinfo

The perfect combination of features.

Borderless Printing

Print borderless edge-to-edge photos quickly and easily.

Individual Ink Tanks

*Four individual ink tanks allow you to replace only the color that runs out. Can reduce ink waste and save money.**

Fast Beautiful Color

*Speeds of up to 22 ppm in black and 14 ppm in color. Print 4" x 6" borderless photos in less than 48 seconds.**†*



1,600 Total Nozzles

More nozzles equal fast photo print speeds.

Advanced MicroFine Droplet Technology™

Precision ink application system and consistent droplet size with up to 4800 x 1200 color dpi result in breathtaking detail.

Ultra-small Ink Droplets

*A combination of 5 picoliter droplets and ultra-small 2 picoliter droplets reduce visible graininess for beautiful photographs.***†*

The i850 Photo Printer.

There's a new printer from Canon that really has it all. Introducing the i850 Photo Printer. It prints beautiful, edge-to-edge, borderless 4" x 6" or 8-1/2" x 11" photos quickly and easily from your digital files. A brand new Canon printhead features 1,600 nozzles for exceptional speed. And, a combination of 5 picoliter and 2 picoliter droplets[†] reduces visible graininess for beautiful photographs. It comes with individual ink tanks that can reduce ink waste and save you money.* And with the included Easy-PhotoPrint^{††} software, it's never been easier to crop, rotate, resize and print your photos.

The i850 Photo Printer. It's technology that makes sense. Visit www.usa.canon.com/consumer

or call 1-800-OK-CANON.

Canon KNOW HOW™



*Will vary based on composition of images/documents printed. **4" x 6" photo print speed is based on default mode using Canon Photo Paper Pro For Borderless Printing 4" x 6". All other print speeds based on draft mode. Print speed will vary depending on system configuration, software, document complexity, print mode and page coverage. ***2 picoliter droplets not available with all paper types and may require higher settings or photo paper. †Specifications subject to change without notice. ††Easy-PhotoPrint is for Windows® operating systems only. Print image is simulated. ©2002 Canon U.S.A., Inc. Canon is a trademark of Canon Inc. Canon Know How is a trademark of Canon U.S.A., Inc. All other product and brand names are trademarks of their respective owners.

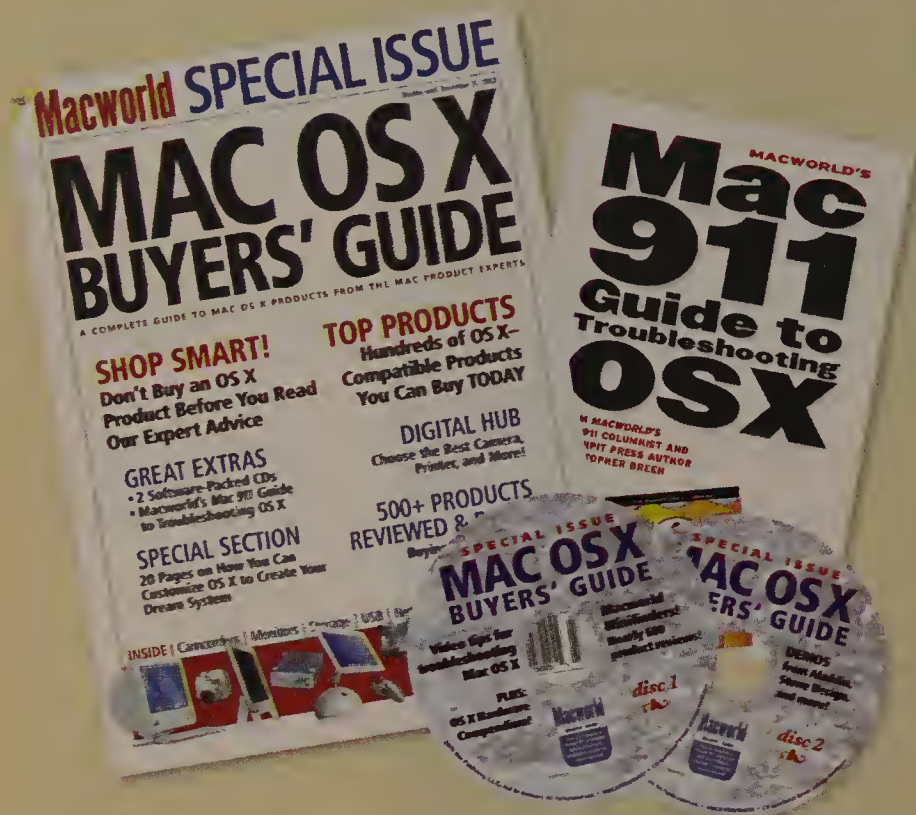
Choose 23 at www.macworld.com/getinfo

ANNOUNCING

Macworld

OS X BUYERS' GUIDE

ON NEWSSTANDS NOW



SPECIAL ISSUE (newsstand only) OS X BUYERS' GUIDE

- Expert Buying Advice
- Comprehensive Coverage
- Easy Reference Format
- Key Facts and Features
- Extensive Product Rating Directory

PLUS: 2 CD-ROMs

Over 1.2 GB of the latest OS X software tryouts, the hottest games, essential tips, eighteen months of Macworld reviews, interactive product listings, and hundreds of OS X shareware programs and utilities.

BONUS! MAC 911 BOOKLET

OS X Troubleshooting Tips & Tricks

ORDER BY PHONE 1.800.288.6848

for \$7.95 plus \$4 shipping and handling*

*Delivery available to US residents only. Issue will be sent priority mail.

Macworld

HOW TO CONTACT MACWORLD

Subscription Information and Services

Phone	800/288-6848 from the United States and Canada 515/243-3273 from all other locations
U.S. Mail	Macworld Subscriptions Department P.O. Box 37781, Boone, IA 50037-0781 (Include a mailing label with correspondence.)
World Wide Web	http://service.macworld.com (for service) or http://subscribe.macworld.com (to order)
E-mail	subhelp@macworld.com (Send your full name and the address at which you subscribe; do not send attachments.)
Fax	515/432-6994

SUBSCRIPTIONS

The one-year (12-issue) subscription rate is \$34.97; the two-year rate, \$59.97; and the three-year rate, \$79.97. Foreign orders must be prepaid in U.S. funds; add \$10 per year for postage to Canada or \$25 per year for air freight to all other countries. Checks must be made payable in U.S. currency to Macworld. Please allow 3 to 6 weeks to receive your first issue or for changes to be made to an existing subscription.

BACK ISSUES OF MACWORLD

Back issues (subject to availability) are \$8 per issue for U.S. delivery (\$12 outside the United States); prepayment in U.S. currency to Macworld is required. Send a check or money order to Macworld Back Issues, P.O. Box 37781, Boone, IA 50037-0781; or phone 800/288-6848 (U.S. and Canada) or 515/243-3273 (all other locations).

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from Macworld. Write to Macworld, Reprints and Permissions, 501 Second Street, 5th Floor, San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage, call Reprint Management Services at 717/399-1900; fax, 717/399-8900; e-mail, sales@rmsreprints.com.

MAILING LISTS

We periodically make lists of our customers available to mailers of goods and services that may interest you. If you do not wish to receive such mailings, please write to us at Macworld, P.O. Box 37781, Boone, IA 50037-0781. Please include a copy of your mailing label.

MACWORLD EDITORIAL

The editors of Macworld welcome your tips, compliments, or complaints. Some stories and reviews from past issues can be located at www.macworld.com. We are unfortunately unable to look up stories from past issues; recommend products; or diagnose your Mac problems by phone, e-mail, or fax. You can contact Apple toll-free at 800/538-9696 or visit the company's Web site at www.apple.com.

Our offices are located at 501 Second Street, 5th Floor, San Francisco, CA 94107; phone, 415/243-0505; fax, 415/243-3545. Macworld staff can be reached by e-mail at firstname_lastname@macworld.com.

LETTERS TO THE EDITOR

Send comments about any aspect of Macworld to letters@macworld.com. Due to the high volume of mail received, we can't respond to each letter. We reserve the right to edit all submissions. Letters published in Macworld or Macworld.com become the property of Mac Publishing.

MAC 911

Send your questions or tips on using Mac computers, peripherals, or software to Macworld, Mac 911, 501 Second Street, 5th Floor, San Francisco, CA 94107; fax 415/243-3545; or e-mail mac911@macworld.com. Include your name, address, and phone number. To share tips and discuss Mac problems with other Mac users, visit the Macworld.com forums.

MACWORLD CONFERENCE & EXPO

As the flagship sponsor of Macworld Conference & Expo, Macworld encourages all subscribers to attend this exciting biannual industry event. For information, please visit www.macworldexpo.com.





Karen (and the rest of our team) would be happy to help you configure your Anthro Workstation.

Problem: Need furniture for 68 different spaces.

Solution: Anthro.

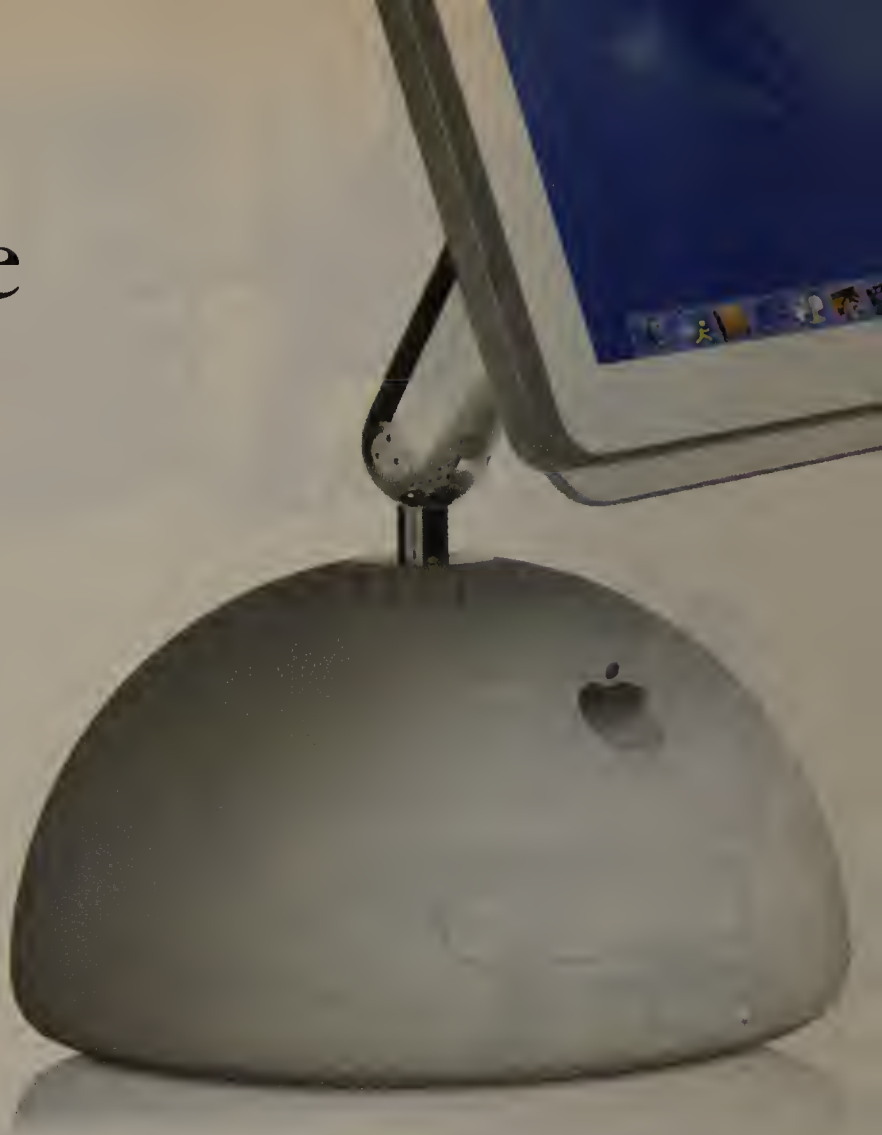


No matter what kind of business you're in, Anthro can outfit your workplace with just the furniture you need. Anthro is found just about anywhere there's technology. And you can build them any way you like. They're modular and flexible and expand or contract according to your needs. Call us or visit us on the Web. Our folks can help you fill whatever space or spaces you have.

Contact us at ANTHRO.COM or 1-800-325-3841



The most evolved computers now have multi-functions and printers to match...



COLOR LASER
From \$1499

WORKGROUP
LASER PRINTING
From \$699

LASER PRINTING
From \$299

When it comes to imaging solutions that are every bit as innovative as your Mac, we're the only name you need to know.

That's because our award-winning line of Mac-compatible printers and Multi-Function Center® models are designed to deliver both maximum performance and value.

From our full line of high-quality printers, to versatile all-in-one multi-function units which print, copy, scan and more, you'll find our products are every bit as evolved as our customers.

COLOR
FLATBED MFC
From \$299

LASER FLATBED MFC
From \$449

LASER MFC
From \$299

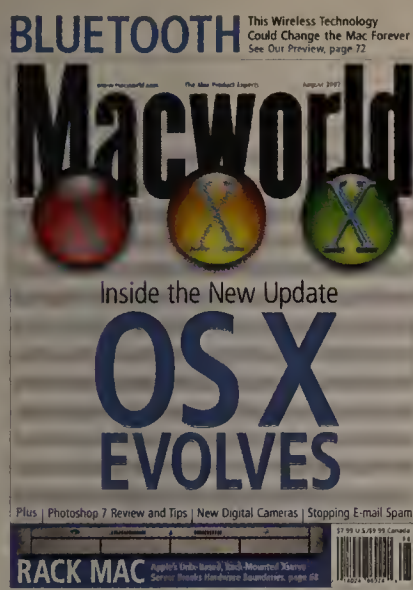
COLOR MFC
From \$169

A VARIETY OF MODELS AVAILABLE AT: MacWarehouse, MacMall, MacConnection, MacZone, CDW, CompUSA, Office Depot, Staples, OfficeMax, Fry's, J&R Computer World

At your side.TM brother[®]

©2002 Brother International Corporation, Bridgewater, NJ. • Brother Industries, Ltd., Nagoya, Japan
For more information please call the Brother Fax-Back System at 800-521-2846 or visit our web site at www.brother.com • All trademarks and registered trademarks are the property of their respective owners.

Choose 119 at www.macworld.com/getinfo



FEEDBACK

Take Our Advice

The August 2002 issue brought out our readers' inner Dear Abby: Many had advice for Apple, on OS X's Jaguar update. Adam C. Engst's article on stopping spam filled our in-box with e-mail messages—most of it welcome advice, we're glad to say, not information about get-rich-quick schemes. But our readers saved their most strongly worded advice for other readers—August *Feedback* letters that praised QuarkXPress as better than Adobe InDesign had InDesign defenders suggesting which XPress partisans could go jump into. Don't believe us? Our advice is to keep reading. □

Spotting Jaguar

RICHARD PRIESING

"Mac OS X Evolves" (August 2002) was interesting, but it overlooked the inclusion of CUPS in OS X 10.2. CUPS is important because it will finally solve all the problems caused by the lack of native PostScript PPDs for OS X. I'm the head of the prepress department for a commercial printer, and CUPS should provide our workgroup with a solid PostScript print server to replace the aging PrintCentral that we currently use. I have a copy of the CUPS handbook and hope that Apple has given CUPS a user interface or back end so that we can get the most out of the system without having to resort to using the Terminal application to input our commands.

BRENT ANGLIN

As one of the attendees of the MacMania cruise to Alaska ("Uncharted Waters," *From the Editor's Desk*, August 2002), I have to tell you that it was the trip of a lifetime. This trip gave me the knowledge and confidence to convert to OS X permanently, and I'm eagerly anticipating the release of Jaguar. I'm convinced that OS X is the best thing that has ever happened to the Mac. It's not only the most elegant operating system I have ever seen but also the most powerful operating system I have ever used. Many features of OS X's Unix underpinnings even turn the heads of my Linux supergeek friends.

JOE GIUSTRA

Macworld reader Ross Bishop is too kind in characterizing OS X's privilege paranoia as "a monumental pain" ("OS X Insecurity," *Feedback*, August 2002). It's evident that the Mac has abandoned

being the computer for the rest of us and remains the computer of the corporate world. As a sole user, I am constantly stiff-armed by the privilege lockout of my files. Apple must give us the option of switching off the sufficient-privilege lock. Otherwise, it should present itself as a manufacturer of network servers, not of personal computers. There is nothing "personal" about a computer that seems to control the user and acts like a terminal computer.

DAVID SHORT

While Jason Snell cruises the Inside Passage ("Uncharted Waters"), many of us are feeling increasingly alienated by Apple. After 15 years as a Mac enthusiast (converting my office along the way), I now find myself betrayed by OS X. Any system as non-user-friendly as OS X deserves to lose customer loyalty. It's ridiculous that Mac users now have to learn lines of command code. It's not a step forward; it's a step backward, to the bad old days of FORTRAN and COBOL. Windows looks more and more attractive. Someone needs to apply this command to OS X: `sudo rm -rf ~/.Trash/`.

EDWARD JANNE

I am sick and tired of all these OS 9 throwbacks who have dug their hooves in against change. Way back when OS X apps were few and far between, I might have understood why people would have complained if Apple had put pressure on to switch to OS X. But now that most old-time favorite apps have stepped up to OS X, and many new and innovative apps have appeared, to complain that OS X's security features are cumbersome is to just nitpick. Unless you've used Windows, you don't know

what cumbersome is. Anyone who knows anything about computers at all knows that attaching a user interface to Unix is no easy task. That Apple has managed to do this and still retain such incredible ease of use is amazing. A sole user may not appreciate all the multiuser features under the pretty face, but I wouldn't trade memory protection and true preemptive multitasking for marginal convenience. I've been using OS X since version 10.0, and now I can't even look at an OS 9 desktop without feeling confined.

Putting Spam on Ice

WERNER J. SEVERIN

Perhaps "Stop Spam!" (*Secrets*, August 2002) should have noted that the Federal Trade Commission is interested in having unsolicited spam forwarded to uce@ftc.gov. Apparently, they go after the most-egregious violators.

LUKE PACHOLSKI

While filters may shield users a bit from spam, filters don't do anything to stop it. Spam will be reduced or stopped only if people fight back. That means reporting spam to the ISP it comes from, either manually or automatically via a service such as SpamCop.

AARON SHEPARD

Here's another spam-stopping tip to go along with those in your article: Stay off of EarthLink. I recently got an EarthLink account, and within two days I was receiving spam at that address—despite the fact that I had not yet used that address, given it to anyone, or even entered it in my browser or Internet preferences.

Retrospect Perspective

STEVE SULLIVAN

I have no doubt Retrospect Backup 5.0 is an excellent program (*Reviews*, July 2002), but I went to Dantz's Web site to confirm that my LaCie CD-RW drive was compatible with it, and I didn't find it listed. Since then, I've e-mailed Dantz, asking for confirmation that my drive will work with the program, but I haven't received a reply from any department I've tried to contact—from tech support to sales to customer service. I consider this to be extraordinarily poor customer service, which gives me misgivings about buying the product. It's just not acceptable to completely ignore a customer who wants to give you money.

Frustrating FileMaker

STEVE NOBLE

I can't tell you how disappointed I am in the new FileMaker Pro 6 ("New Tricks, Fewer Clicks," *Mac Beat*, August 2002). FileMaker is an excellent program, but it

lacks many features, such as multiple tables in a single file, event-triggered scripts, customizable menus, and more. Some of these items are available through plug-ins, but purchasing these means paying twice for the software. Every upgrade since version 3 has added important new features, but only a few at a time. FileMaker 5 had a new marketing look, but it was basically the same program. I know many of us out there feel this way. Our only hope is that if enough of us politely complain, FileMaker will finally listen.

You've Got Mail, Andy

ROGER BARTHELSON

I was a little surprised that Andy Ihnatko didn't mention Nisus Email in "E-mail Options Aplenty" (*Ihnatko*, August 2002). I don't use it as my main e-mail application, but I find it pretty useful if I want to send a clipping from another application. I find it invaluable if I need to send out several e-mail messages to a list of recipients and want to use a database to customize the messages (for example, when

I'm sending a general cover letter to a number of prospective employers but want to use the information in a simple AppleWorks database to customize each letter). I was disappointed to find that AppleWorks 6 left out the ability to e-mail directly from within the program—thereby preventing me from contacting a number of employers at once. Nisus Email allows me to do that fairly easily.

TIM LAPIN

While I share Andy's complaint that no single package seems to "have it all," I would like to add one more package to his list: PowerMail. I have been using version 3.X and eagerly await the 4.X upgrade. PowerMail is perhaps the only e-mail app for which I am willing to spend money. I don't know if I would go back to amber-on-black command-line sessions, but I should point out that I chose PowerMail because it was the closest program to Claris Emailer I could find at the time. Like many Mac users who also care about how their e-mail is handled, I was saddened by the loss of Emailer and simply



HAVE FUN WITH YOUR DIGITAL PHOTOS

For just \$99⁹⁵, the Graphire2[®] gives you the control you need to quickly and easily edit your digital photos. Have fun with Graphire2 and join more than 2,000,000 satisfied Wacom[®] tablet users.

HOW TO FIX BLINKS

Use the control of your Wacom pen to seamlessly fix the blink by bringing in a pair of open eyes from another digital photo. Then have some fun turning that awkward sign in the background into something special.

FREE PHOTO FUN CD!!



Visit our website to see a short video of this fun fix in action. And while you're there, request your FREE Photo Fun CD.

visit www.tabletphotofun.com
call 800-922-2589



SHE'LL LOVE HOW YOU CAPTURED THE MOMENT.

PATENTED PEN

Pressure-sensitive for control, with a built-in eraser for easy fixes. There's no cord to tangle, no batteries to buy—ever. And it works with any software a mouse will.

CORDLESS MOUSE

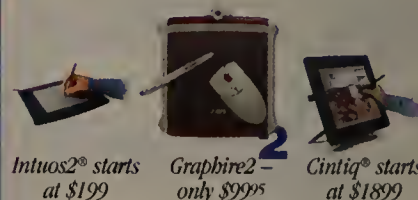
No ball to clean, no cord to tangle. And no batteries to buy—ever.

FREE SOFTWARE

Comes with Painter Classic and Adobe Photoshop LE.



graphire2
BY **WACOM**



Intuos2[®] starts at \$199 Graphire2[®] only \$99⁹⁵ Cintiq[®] starts at \$1899


© 2002 Wacom Technology Corporation. Offer good while supplies last.

reserved. All other trademarks property of their respective owners.

Choose 85 at www.macworld.com/getinfo

refused to use any of the free clients, as they are all horrid in some way. I will probably spend more money on the latest PowerMail, although I am intrigued by the upcoming Jaguar release of Apple's Mail program. In either case, it sure beats spending \$400 or so for Entourage.

Macworld's Familiar Quotations

JIM WIGLER 

David Blatner's "Save XPress Styles" (*Secrets*, July 2002) misquotes Dorothy Parker. In the screenshot showing formatted XPress files, we see "Life is a sonnet, life is a song / A garden of extemporanea / And love is a thing that never goes wrong." The real quote is "Oh, life is a glorious cycle of song, / A medley of extemporanea; / And love is a thing that can never go wrong; / And I am Marie of Roumania."

Play Myth III for Me

MICHAEL R. BAGNALL 

Regarding Brian Holbert's letter about Myth III ("Myth III? Not for Me." *Feedback*, August 2002): I am the head of MythDevelopers, a group of volunteer programmers and artists who are fanatic about the Myth game series. Two of our programmers were recently given permission by the game's owners to make changes to the Myth III code and support it in terms of improving game play and providing a better multiplayer environment. These changes are in development. We currently support online game play for Myth II: Soulblighter and will support Myth I by the end of summer. We plan to have a Myth III service ready sometime this fall. More information is available at PlayMyth.net.

Fax Attacks

JOSEPH SLATER 

After reading your editor's note stating that you knew of no OS X-native alternative to Smith Micro's Faxstf fax software ("Just the Fax," *Feedback*, August 2002), I went to VersionTracker.com and found that, indeed, Cocoa eFax is listed. Why wasn't Cocoa eFax included?


When we wrote our note—and the May 2002 review of fax software—Cocoa eFax was a beta release. It's our policy to review software only after a shipping version has been released.—Ed.

Film versus Digital

HARRISON JUDD 

I object to the use of the term "film-camera quality" in your review of the Canon EOS D60 (*Reviews*, August 2002). Compare a JPEG file from any digital camera with a 35mm scan from even a 2,700-dpi scanner, and the scanned image is preferable, for resolution alone. And film can capture subtle shadows and difficult highlights that no current digital camera can. Digital cameras continue to evolve, but they simply don't match the quality of standard 35mm film in resolution or dynamic range of color fidelity. Digital-camera shutters are also much slower to respond than traditional SLRs. Your reviews are generally accurate and informative, but digital cameras are a long way from being able to boast film-camera quality, even at the high end of the equipment spectrum.

In Praise of InDesign

ADAM ROGERS 

Amazing—after boldly exposing the quirks in QuarkXPress and giving some ink to InDesign, the new kid on the block, you run three letters, out of a total of four on the subject, in favor of XPress ("Layout Shoot-Out," *Feedback*, August 2002). I thought I'd never leave XPress, but since giving the InDesign trial version a test-drive in designing a 200-page publication, I've never looked back. At first I felt funny, but after leaving XPress for InDesign, I'm happier, more creative, and less dependent on aspirin. Sure, most printshops have yet to support it, but with InDesign I can create bullet-proof PDFs that rip straight to press. This is much easier than sending a Quark file and praying that all my tables and fonts will come out as I intend them to.

BRAD CATHEY 

As ten-year veterans of QuarkXPress, we switched wholesale to InDesign after version 1.5 came out. We've been running it on everything from beige G3s to multi-processor G4s, printing on a variety of printers and sending files to printshops around the country without incident. Granted, InDesign doesn't do everything, but it does a lot more than QuarkXPress, especially in the area of productivity. What used to take an hour now takes 60 seconds.



GARY STOLZ 

To Mr. Hall: My vendors support InDesign because I told them I'd be using it, and they want to keep me as a customer. One vendor in particular worked closely with me when InDesign 2.0 came out. We've had no troubles, from one-color solid to four-color process printing. To Mr. Shub: Conversion from QuarkXPress isn't perfect, but trust me, you want InDesign to reflow your text with its own type engines. To Ms. Jackson: You have no business putting a JPEG file into a print piece. Convert the file to TIFF in Photoshop before you resize the photo and apply the unsharp mask. The only place InDesign doesn't compete with QuarkXPress is in customer service—Quark's is still the rudest in the solar system.

Keller on Batteries

MARK TANK 

Jeff Keller says that it's a bad thing Fuji doesn't have a rechargeable battery ("Keller on Cameras," *Reviews*, August 2002). There is a debate among digital photographers about this. I believe that not having a specific rechargeable battery is a good thing. A camera that uses AA batteries lets the user choose from hundreds of good-quality rechargeable AAs. If you leave your charger at home, you can buy AAs to get you by.

 **Post comments on our forums (www.macworld.com); send them by mail to  **Letters, Macworld, 501 Second Street, 5th Floor, San Francisco, CA 94107; or send them electronically to letters@macworld.com.** Include a return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters and posts. All published letters and forum comments become the property of Macworld.**

CORRECTIONS

The correct Web address for 21st Century Media, the makers of cast:stream ("Macworld Conference & Expo Best of Show," *Mac Beat*, September 2002), is www.21stcenturymedia.com.

The chart accompanying "Power Mac: Twice As Nice" (*Mac Beat*, October 2002) listed the incorrect graphics processor for the dual-1GHz and dual-1.25GHz Power Macs. The video card in these models is ATI's Radeon 9000.



Supporting the Mac aficionado since 1987.

We know Mac!

Rely on Mac Warehouse for:

- **Our Experience**
15 years, 34 million orders fulfilled
- **Our Knowledge**
You have a question, we have the answer
- **Our Service**
We're open for business whenever you call

**Oh, and our 24/7 Tech Support is FREE
for the lifetime of your product.**

**New! Apple iMac® G4
with 17-inch Display**



Authorized Reseller

macware

authorized reseller

EPSON®



QUARK™

SONY®

**Your #1 source for
everything Mac!**

**New! HP DeskJet
5550 Printer**

Stunning!

Photo-quality
results with
crisp resolution
and fast speeds

Smart!

Automatically
detects paper
type and adjusts
print settings
for best quality

Versatile!

Print single or
2-sided color
or black and
white pages



**Sony Cyber-shot®
DSC-F707**



**Iomega HDD
Portable Hard Drive**



**Adobe® Premiere®
6.5**



**256MB PC133
SODIMM for iMac® G4**

house.com



**MAC
WAREHOUSE®**
A MICROWAREHOUSE Company

1-800-434-3035

Choose 19 at www.macworld.com/getinfo

PHOTOSHOP HAS BEEN OS X NATIVE SINCE SPRING—NOW PLUG-INS ARE FOLLOWING SUIT

The Plug-in Puzzle

WHAT'S NEXT

Comdex isn't a big Mac event, but many of the cameras, printers, and storage devices the November 18 trade show will feature are aimed at Mac and Windows users alike.

>> For design professionals, switching to Mac OS X without a native version of Adobe Photoshop would be like buying a new car without an engine. The car's exterior may look nice, but it really won't take you where you want to go.

OS X-compatible Photoshop 7 has been available since April, but design pros haven't necessarily been driving happily into the sunset with Apple's new operating system. A native version of Photoshop fills a major gap for designers, but smaller, crucial pieces of the puzzle remain absent: OS X-savvy plug-ins.

Applications rely on plug-ins to add specific capabilities for niche users. Programs such as Photoshop, QuarkXPress, Adobe Illustrator, and FileMaker are already rich in features and hefty in file size; by

supplying features needed by a select segment of users, plug-ins keep those apps from bulking up further. You may not want to create 3-D broadcast-quality titles in Photoshop, but that may be just the functionality a digital-video pro needs to save hours of work.

OS X Unplugged

Photoshop has hundreds of plug-ins—probably thousands if you include freeware floating around the Internet—almost all of which were written before OS X. And if there's a particular Photoshop plug-in you're fond of using that isn't OS X compatible, you'll have to do your work in OS 9 or OS X's Classic mode.

If you're wondering about the demand for OS X-compatible plug-ins among Photoshop users, consider the case of Reindeer

Graphics. Shortly after Photoshop 7 was announced, the developer released three free plug-ins it had ported to OS X. Chris Russ, Reindeer Graphics' president, says that in the first week, the company saw 8,000 downloads per plug-in.

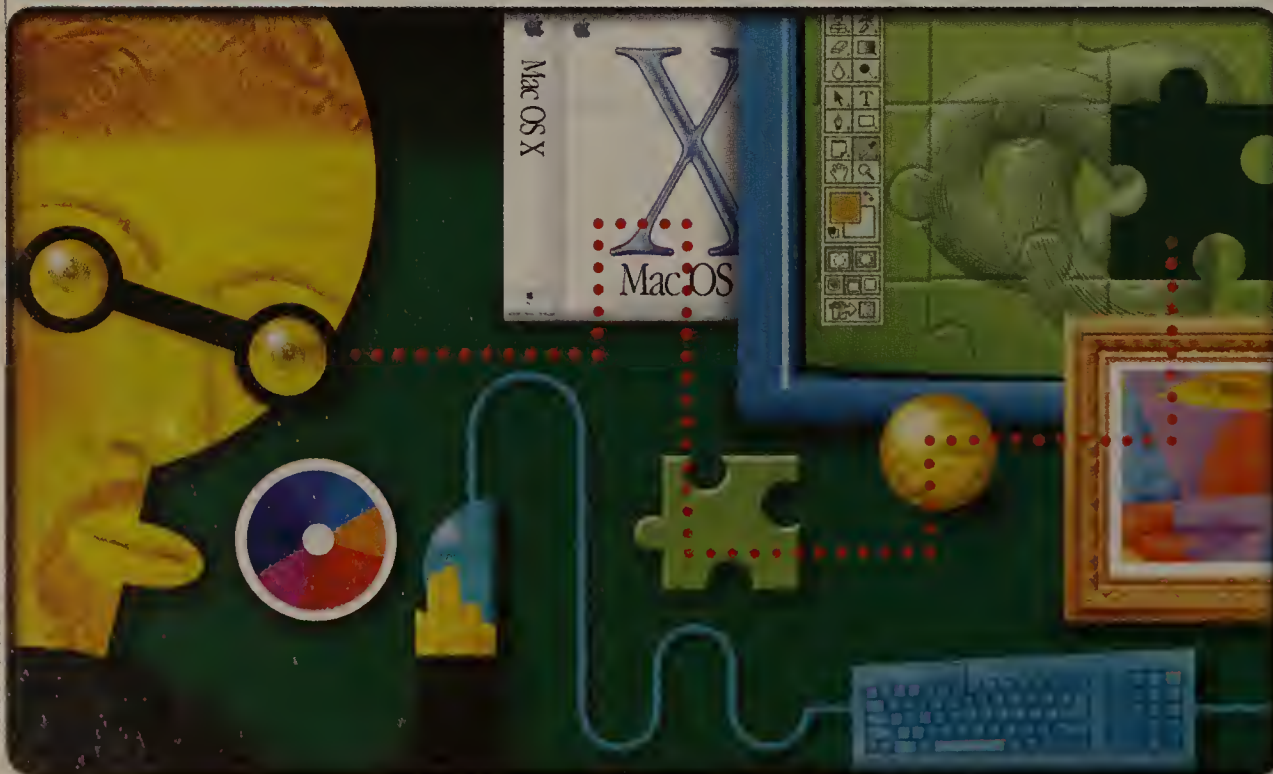
"This gave us an idea of the pent-up demand," says Russ, whose company has since released the OS X-native Optipix plug-in and is working on a native version of its Fovea Pro application that it hopes to release by year's end.

How successful have third-party developers been in porting existing plug-ins to OS X? Adobe doesn't have hard numbers, says Tom Ruark, who works in the company's Partner Technologies department and interacts with many plug-in creators. But Adobe believes that many developers are working on the conversion to OS X now.

Head Start

Indeed, all the plug-in developers *Macworld* spoke to either have OS X-native versions available now or have them in the works. A handful of software makers were able to put out their products at the same time Adobe released Photoshop—or, in some cases, *before* Adobe released Photoshop.

The explanation for this space-time continuum sleight of hand? Many of the programs are Photoshop-compatible plug-ins that also happen to work with other applications. So developers were able to charge ahead with OS X



GORDON STUDER

versions even before Photoshop 7's release. "We were OS X native before Photoshop," says Mike Fotheringham, Auto FX's vice president of research and development. Mac users running OS X would launch Photoshop 6 in Classic, but if they activated an Auto FX plug-in such as DreamSuite, it launched as a separate application in OS X's Aqua interface.

Auto FX was ahead of the curve because the company was eager to take advantage of OS X's power. "We're processor and memory intensive, so we knew OS X would benefit us a lot," Fotheringham says.

Corel's Procreate division also released OS X plug-ins before Photoshop 7 arrived. Among those early releases were Photoshop-compatible plug-ins Knock-Out 2 and KPT Effects.

Greg Wood, Procreate's communications manager, says the company's schedule did pose a bit of a challenge, but "we worked with Adobe on prerelease versions of Photoshop." Procreate engineers were also able to learn from their first OS X release, the 3-D-landscaping and -animation tool Bryce. "We took what we'd learned from Bryce, and within a few days, we'd converted KPT Effects," Wood says.

Ready or Not?

While some native programs have been available for a while, others are still in development (see "Pluggin' Away"). "For some plug-ins, it could be that customers aren't requesting OS X versions yet," Adobe's Ruark says. "It might also be companies' development cycles—they could be working on other projects and just haven't gotten to the conversions yet."

That's been the case at Andromeda Software, which has 14 Photoshop-compatible plug-ins. Engineers have converted two of them, ScatterLight Lenses and LensDoc Filters, to OS X.

The remaining products are on a waiting list. Product Manager Louann Barbeau says that competition for engineering time is the main cause. "We're trying to give the plug-ins the importance they deserve, yet still handle other demands on our engineering consultants," she says.

Overall, engineers haven't reported many problems during conversion,

Pluggin' Away

Adobe Photoshop users can choose from among hundreds of plug-ins when they need to bolster the capabilities of the image-editing program. Here's a sampling of popular plug-ins that provide a wide array of capabilities—and the progress they're making toward Mac OS X compatibility.

COMPANY	PRODUCT	PRICE	CONTACT	WHAT IT DOES	MAC OS X COMPATIBILITY
Alien Skin Software	Eye Candy 4000	\$169	888/921-7546, www.alienskin.com	3-D bevels, drop shadows, and other effects	available now
	Image Doctor	\$129		image correction	available now
	Splat	\$99		frame, resurfacing, stamping	available now
	Xenofex 2	\$129		natural phenomena and distortion	end of 2002
Andromeda Software	Cutline Filter	\$74	805/547-0055, www.andromeda.com	hand-engraved special effects	no date announced
	ScatterLight Lenses	\$98		scattering highlights	available now
	Shadow Filter	\$109		3-D shadows	no date announced
	Three-D Filter	\$56		3-D visualization and scene creation	no date announced
	VariFocus Filter	\$47		selective focus effects	no date announced
Auto FX	AutoEye 2.0	\$129	205/980-0056, www.autofx.com	color and detail rebuilding	available now
	DreamSuite Series One	\$199		visual effects	available now
	DreamSuite Series Two	\$149		visual effects	available now
	Photo/Graphic Edges 5.0	\$199		edge effects	available now
Extensis	IntelliHance Pro	\$200	800/796-9798, www.extensis.com	image enhancement and color correction	early 2003
Human Software	Select Pro 4	\$249	408/399-0057, www.humansoftware.com	color correction	available now
	Textissimo 3	\$99		text effects	fall 2002
nik multi-media	Sharpen Pro	\$330	619/725-3150, www.nikmultimedia.com	image sharpening	available now
Procreate	KnockOut 2	\$329	800/772-6735, www.procreate.com	masking	available now
	KPT Effects	\$199		image transformation and other effects	available now
Reindeer Graphics	Fovea Pro	\$800	828/252-7515, www.reindeergraphics.com	image analysis	end of 2002
	Optipix 1.0	\$100		image enhancement	available now
XaosTools	Paint Alchemy	\$199	510/525-5465, www.xaostools.com	paint effects	no date announced
	TypeCaster	\$199		type conversion	no date announced

Ruark says. For his part, Auto FX's Fotheringham found the conversion process "amazingly smooth," with one notable advantage: "When I develop in OS X, I don't crash," he says.

Finley Lee, a software engineer at Alien Skin Software, also describes the process as "pretty simple and straightforward. The folks with problems have older code for their user interfaces."

Eye Candy 4000, Splat, and Image Doctor are among the Alien Skin plug-ins that already feature OS X compatibility. An OS X-native version of Xenofex will be available at year's end. "In some ways, doing an OS X version is like supporting a new platform," Lee says. "But

except for some little bugs, [the process has] been smooth. Apple did a fine job with Carbon. It's a pleasure to program for, compared to Classic."

The Last Word

Time will tell whether working in OS X will be as pleasurable for design pros as programming in it was for Lee. If you need specific Photoshop plug-ins to work efficiently, you'd be wise to check on the status of your favorites before switching to OS X. But for the lucky designers who rely on Photoshop *and* on core plug-ins that are already available in native versions, the OS X puzzle may finally be complete.—TERRI STONE

IMAGING
BEAT

Digital Cameras

Two cameras from Canon (800/652-2666, www.usa.canon.com): The **PowerShot S230 Digital Elph** (\$399) is a 3-megapixel camera with a 2× optical zoom lens—the first 3-megapixel Digital Elph camera. Designed for maximum portability, it replaces the PowerShot S200, now priced at \$299, at the top of the Digital Elph line. The **PowerShot G3** (\$799), which replaces the PowerShot G2, is a 4-megapixel camera with a fast f2.0–3.0, 4× optical zoom lens; new metering modes (including spot metering); and an improved connector for attaching add-on wide-angle and telephoto lenses. The G3 provides extensive flexibility for digital photographers, with 12 preset shooting modes and complete manual controls. Both the G3 and the S230 have improved movie modes, which are capable of recording as much as 3 minutes of video at 15 fps. They also sport a new imaging processor that Canon claims offers better image quality and faster overall processing. Each camera comes with a 16MB CompactFlash media card, a USB cable, and Canon's ImageBrowser app; they work with OS 9 and OS X.

Two **EasyShare** cameras, from Kodak (800/242-2424, www.kodak.com): The **DX4330** (\$350) is a 3-megapixel camera that features the debut of Kodak's 1.8-inch Indoor/Outdoor LCD display. It has a 10× zoom with a Kodak Retinar aspheric all-glass 3× optical zoom lens. The **CX4200** (\$180) is a 2-megapixel camera with a 2× digital zoom.

A digital-camera recall by Nikon (800/645-6687, www.nikonusa.com): A limited number of **Coolpix 2000** digital cameras have a battery-circuit problem that could cause excessive heat in the camera. As a result, Nikon has issued recall orders for all cameras with serial numbers between 3010001 and 3060980 and between 3510001 and 3561916. If you have an affected camera, call Nikon Customer Service at the provided number for detailed instructions on returning the camera.

Three cameras from Olympus (800/645-8160, www.olympusamerica.com): Similar in size to Canon's Digital Elph line, the **C-50 Zoom** (\$600) is a 5-megapixel camera with a 3× optical zoom. It uses the new xD-Picture card format jointly developed by Olympus and Fuji, and it comes with a 32MB xD card. The **C-5050 Zoom** (\$900) is a 5-megapixel camera with an f1.8, 3× zoom lens; magnesium body; hot-shoe for external flash; and support for xD, SmartMedia, and CompactFlash cards. It includes a 32MB xD card. The **C-730 Ultra Zoom** (\$700) is a 3.2-megapixel camera for people who want a telephoto lens. Its 10× optical zoom lens has the equivalent of a 38mm–380mm lens on a 35mm film camera.

Projectors

A projector from Sharp Electronics (888/467-4277, www.sharpelectronics.com): The **Notevision C50** projector (\$6,195) features 3,000 ANSI lumens of brightness and native XGA resolution. It operates at a sound level of 36 dB, and it offers S-Video and composite inputs and two separate RGB inputs. —COMPILED BY RICK LEPAGE AND PHILIP MICHAELS

APPLE'S .MAC STRATEGY COULD BE A SIGN OF THINGS TO COME ON THE WEB

Pay to Play—Here to Stay?

Some of us may disagree with Apple's decision to turn its iTools suite of free Web-based applications into the fee-based .Mac, but there's no denying an increasingly common trend on the Web these days: formerly free services appearing with a price tag attached.

Several factors are behind the Web's shift from free to fee; among them is the money needed to offset a Web site's operating expenses. "Right now, when you run a service on a Web server, you

One key difference between Apple and many other fee-based sites is the company's main business: personal computing. As other rivals look to fully integrate their software with the Internet, Apple has to keep up. "Apple probably needs to extend its reach to servers and the Internet if they want to compete against Microsoft as a platform vendor," Travers said. "More and more people see the network as an extension of their computer, so it would probably be very risky for Apple not to do something like this."

Consider the Costs

But will that risk pay off? Right after Apple announced .Mac in July, disgruntled iTools users flocked to message boards, circulated petitions, and sought out free alternatives for e-mail and online storage. Using no-cost Web services is certainly easier on the budget and lets users create multiple accounts for handling



Farewell to Free Some Mac users may balk at paying for .Mac, but free online services are rapidly disappearing.

bear all the costs in hardware, software, and bandwidth," says Oliver Travers, a marketing consultant and editor at The End of the Free (www.theendoffree.com), a Web site that tracks the emergence of fee-based services on the Web. "The more your free service grows, the more you lose money."

Changing Times, Shifting Strategies

Although swallowing all the administrative costs may have been the thing to do a few years ago, leaner economic times have forced many Web sites to review their free offerings and look for ways to offset expenses. While some sites known for free Web tools—notably, Yahoo and MSN Hotmail—have gone with a mix of free and premium services, others—such as mail-forwarding service Mail.com and search engine Northern Light—have done what Apple did with .Mac and begun charging consumers for access to their services.

both personal and professional business online. But there can be drawbacks to relying on such services.

Complaints about free e-mail services deleting old mail or being difficult to access aren't new, but with more companies pushing users toward premium fee-based services, restrictions on what a free e-mail account can and can't do are likely to grow tighter. Then there's the lack of accountability if a business offering free services goes belly-up. This summer, TalkCity, a free Web-site-hosting company, abruptly shut down its servers as its bankruptcy proceedings began—making it impossible for the people who had created the 2.5 million Web pages hosted there to retrieve their files. As of press time, TalkCity's company officers said there were no plans to revive the servers. The bottom line is that users currently have little legal recourse when they lose their files or e-mail. And that's a cost to consider, even when the services are advertised as free. —LISA SCHMEISER

Low-Budget Blockbuster

When it came out seven years ago, Sony's VX1000 MiniDV camera changed independent film production by offering high-quality digital video at an impossibly low price. Now, it's Panasonic's turn to revolutionize digital cinema, with its AG-DVX100 camcorder (800/528-8601, www.panasonic.com)—the first video camera to boast true cinema-style, 24-fps progressive video capture. This frame rate helps the AG-DVX100 produce video that's more film-like than the output of traditional camcorders that capture images at 30 fps. In addition, the AG-DVX100 can easily switch between 24-frame progressive, 30-frame progressive, and 60-field interlaced (normal video) capture modes. The 4.4-pound camera comes with several touches aimed to please video pros: a precision lens with manual zoom, focus, and iris controls, and two built-in XLR audio inputs. Those capabilities and features come in a camera priced at \$3,495—a fraction of what the AJ-PD900WA (\$40,000), the AG-DVX100's high-end older sibling, costs. Panasonic figures that the AG-DVX100 will appeal to Mac-using filmmakers, and not just because of the camera's FireWire interface—Apple has already publicly committed to native support of Panasonic's new 24-frame mode in future versions of Final Cut Pro.—ANTON LINECKER



MACS AT WORK

Small Megahertz, Big Output

Pick up any full-color glossy magazine from the newsstand, and chances are it was put together by an army of computers running off enough processing power to light up a city block—but not *Delaware Beach Life*. Four times a year, editor and publisher Terry Plowman assembles his 100-page magazine on an iMac whose G3 chip boasts a clock speed that hasn't been considered fast since the Clinton administration.

Nevertheless, Plowman has published four issues of *Delaware Beach Life* since the magazine's June 2002 debut, using nothing more than a 400MHz G3 iMac with 192MB of RAM and Mac OS 9. Not that Plowman is complaining: "When the iMac came out, it seemed like a perfect model for my home office," he says. "I like that it's self-contained, and it fit my budget of about \$1,500. I considered buying a more powerful Mac, but I was unsure about ad revenues with a start-up, so I decided to give this model a try."

The mighty but modest iMac tackles every task at the magazine, from page

layout to subscription management. And while the graphics programs can test its processing limits, the machine holds its own with demanding applications such as QuarkXPress and Adobe Acrobat and Photoshop.



The quality of the full-color glossy magazine is so convincing that even the printers don't know the difference. "They're none the wiser," Plowman says. "Every month, they receive perfectly crafted PDFs, which they use to print the magazine. They're delighted I'm on a Mac, since most publications they work with are done on the Mac platform."

Although Plowman will soon add an 800MHz G4 iMac with a 17-inch flat-panel display to meet the growing magazine's needs, his three-year-old iMac won't be forced into retirement. Plowman plans to use the original machine to handle subscriptions, accounting, and e-mail. One thing is for certain, however. "I'm too familiar with Macs to even consider a PC," he says. "[It] just strikes me as an inelegant version of a Mac."—LISA BAGGERMAN



PRODUCTIVITY BEAT

Software

Utilities

DragStrip 4.0, from Aladdin Systems (800/732-8881, www.aladdinsys.com): The launcher application, which lets users organize and access frequently used files and applications, adds OS X support. It also includes a new Strip assistant for customizing strips (\$20; upgrade, free).

Speech Recognition

iListen 1.5, from MacSpeech (603/626-5111, www.macspeech.com): The update to the speech-recognition program runs in both OS 9 and OS X. It features improved recognition performance, transcription support, and voice playback in correction mode. It also adds shared preferences between OS 9 and OS X, as well as an iListen Dock menu for OS X (\$99; upgrade, \$40, or free for people who purchased iListen after June 1, 2002).

Word Processing

Documents To Go 5.0, from DataViz (800/733-0030, www.dataviz.com): The productivity app that lets you read and edit Word and Excel files on your Palm OS-based PDA is now OS X native. The premium edition includes the ability to create and edit word-processing and spreadsheet files on the handheld (premium, \$70; standard, \$50; upgrade pricing varies).—COMPILED BY PHILIP MICHAELS



INPUT DEVICE BEAT

Keyboards

Two corded keyboards and four cordless keyboard-mouse combinations from Logitech (800/231-7717, www.logitech.com): The **Internet Navigator Keyboard** (\$30) and **Elite Keyboard** (\$50) feature an integrated navigation tool that allows users to scroll, zoom, access hard-drive files, and browse Web bookmarks. The **Cordless Access Duo** (\$60) features a mouse and an Access keyboard with a zero-degree-tilt design, while the **Cordless Navigator Duo** (\$80) includes a Cordless Navigator keyboard and Cordless Optical Mouse. The **Cordless Comfort Duo** (\$100) bundles a keyboard and a Cordless MouseMan Optical, while the **Cordless Elite Duo** (\$100) pairs Logitech's Elite Keyboard with the Cordless MouseMan Optical.

Mice

A wireless mouse for presentations, from Powr Marketing (866/800-7697, www.powrmarketing.com): The **Powr Pointer** (\$100) is a fully functional mouse with a laser pointer that uses a 900MHz RF signal to connect to a Mac as far as 30 feet away. It comes with a USB receiver that plugs into the computer.—COMPILED BY PHILIP MICHAELS

MICROSOFT TO MAC USERS: WHERE DO YOU WANT TO GO NEXT YEAR?

MSN Coming to Mac in 2003

Starting next year, Mac users looking for online services, such as e-mailing, calendaring, and instant messaging, will have another option to consider—and it will be from a source long off-limits to the Mac platform.

Microsoft (800/426-9400, www.microsoft.com) plans to release a Mac client of its MSN online services in early 2003. In keeping with Microsoft's pledge to focus all Mac development on Apple's new operating system, the Mac MSN client will be available only for Mac OS X. The move comes as other Internet service providers spruce up their Mac offerings—particularly America Online, with its release in August of an OS X-only client for its AOL service.

"We saw a need," says Tim McDonough, director of marketing for the Microsoft Mac Business Unit, which will work with MSN to develop the client software. To that end, the Mac Business Unit will draw on its experience in developing Internet Explorer and Entourage specifically for the Mac. Look for core technologies from those applications to be integrated into MSN's Mac client, which will be built from the ground up in OS X. Microsoft also plans to provide free Mac-specific customer support when the MSN for Mac client ships in early 2003.

Monthly subscription prices vary, depending on how you receive MSN services. Dial-up service costs \$22 a month, while broadband service is available for a \$40 a month.—PHILIP MICHAELS

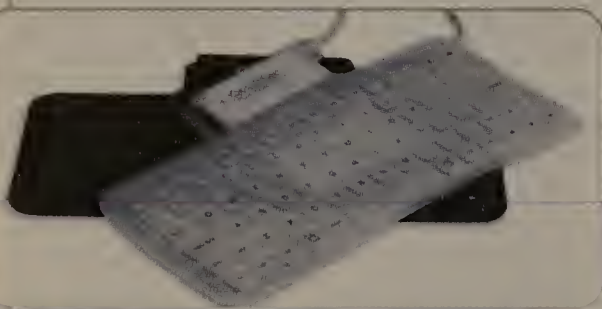
SILICONE-CAST KEYBOARD FLEXES ITS MUSCLE

Bend, Don't Break

If superheroes ever find themselves in need of a keyboard, they'd do well to consider the CoolMac Keyboard from CoolMacStuff.com, the online store for the Mac specialist Crywolf Consulting (866/266-5622, www.crywolfstore.com/cool), in San Diego. Like the Man of Steel himself, the CoolMac Keyboard is nearly impervious to whatever hazards life can throw at it. Crumbs, stray ink marks, beverage spills—the kind of mishaps that can fella

ordinary keyboard—roll off the CoolMac Keyboard's silicone-cast body without a fuss. Crywolf drew on a similar PC product for inspiration, but it added enough Mac-specific touches—such

as the ⌘ keys on either side of the spacebar—to make its \$59 keyboard appeal to Mac users. (Look for a keypad-equipped version and one for PDAs sometime this fall.) Flexible enough to roll up into a bundle, the CoolMac Keyboard is ideal for travelers who demand portability but don't want to sacrifice durability. Its flat design also eliminates negative-angle wrist stress. Like any superhero, the CoolMac Keyboard has one vulnerability—don't slice through the silicone with a knife or a pair of scissors and expect it to remain functional. There's no word yet on how well the keyboard withstands kryptonite.—PHILIP MICHAELS



PRO FILE | Q&A WITH DAVID STORY

MONEY TALKS

Intuit caused a stir among Mac users this summer when it announced plans to release a new version of QuickBooks, the long-dormant small-business finance program that hadn't been updated in four years. As Intuit prepares to ship the OS 9- and OS X-compatible update in early 2003, *Macworld* speaks with David Story, chief technology officer for Intuit's small-business and personal-finance division, about the decision to revive QuickBooks.—PHILIP MICHAELS



AT A GLANCE

DAVID STORY

CTO, Intuit's small-business and personal-finance division

MAC: PowerBook G4 **SOFTWARE:** Photoshop Elements, Microsoft Word

Why is Intuit putting out a new Mac version of QuickBooks?

In looking at QuickBooks and its history, the key thing about our decision to bring it back has just been listening to customers. A lot of people don't know that we survey thousands of customers every year. And recently, we've seen an uptick in interest in the re-release of a version. They really wanted us to do a version that worked with OS X, and they wanted to see an ongoing commitment to the platform. That's what we're talking about here—a long-term commitment, a multiple-year commitment to develop QuickBooks for the Macintosh.

Why did development of the Mac version stop?

The essential reason was that we knew we could continue to offer support for QuickBooks for the Mac. We'd been looking at other products and saying, "We can go to not-annual releases of these." And when we looked at customer demand, they were pretty satisfied with that product. That product has just outsold everything else. It's been a fantastic product for us. So what we decided to do was keep very active and keep track of what new things customers wanted. When that hit critical mass, we decided to reinstitute our Macintosh business and set up a separate Macintosh business specifically focused on that to make sure we were able to take advantage of OS X and meet a backlog of customer needs.

So you wouldn't say that the perception among some Mac users that QuickBooks abandoned the Mac is accurate?

If you look at it from Intuit's perspective as a whole company, we've continued to release TurboTax and Quicken and really be dedicated to the Mac platform. It was simply on the QuickBooks side [that] customer demand was appropriate to keep the current version running. So that's why we focused on maintenance releases and patches and updates for QuickBooks, and now it's time to come back and really focus in on [a new version].

More Info:

www.macworld.com/2002/11/macbeat/quickbooks.html

Intuit explains how QuickBooks fits into its Right for My Business strategy in *Macworld's* online interview.



Is your digital camera giving you the most realistic images?

With up to 10x optical zoom, the Olympus C-720 and C-730 Ultra Zoom cameras create picture quality so real, your images come to life. Faraway subjects are brought in close for detailed pictures, even in 8x10 prints. Combine this with 3 megapixels and an advanced Color Management System for accurate colors, plus a lens designed specifically for digital photography, and the result is crisper, more realistic images.



olympus.america.com/ultrazoom

*The C-730,
with 3.2
megapixels
and 10x
optical zoom.*

The C-720 and C-730 feature a powerful optical zoom lens and ultra-compact body. And Auto Connect USB to easily download and share the most realistic digital images yet. **Nothing's impossible.**

The missing piece of the Mac OS X puzzle



Introducing Drive 10 version 1.1. Optimizes and defragments your Mac OS X drives and much more.

For Apple's next-generation operating system, you'll need a next-generation disk utility. That's why Micromat has introduced Drive 10, the first and final disk utility for Mac OS X. Problems with your drive? Drive 10 can repair almost any drive problem with one simple click of your mouse. All within Mac OS X's native environment.

And with the introduction of version 1.1, you can now optimize and defragment your Mac OS X drive from within Mac OS X. Plus, we've added a whole host of new repair routines that allows you to find and correct drives problems that other utilities would simply abandon.

Drive 10 is a world-class diagnostic and repair utility. Using time-tested routines developed exclusively for Mac OS X, Drive 10 offers many tools for checking and repairing any drive on your system. The included Drive 10 CD-ROM will boot your machine to repair hard drives that won't even appear on the desktop.

Don't entrust your Mac OS X drive to ancient and outdated utilities. Protect your data and drive safely with Drive 10.



From the makers of TECHTOOL PRO

 Micromat Inc. 800-829-6227 707-566-3831 info@micromat.com www.micromat.com

©2002 Micromat, Inc. All rights reserved. TechTool is a registered trademark of Micromat, Inc. Drive 10 is a trademark of Micromat, Inc.
Macintosh and AppleCare are trademarks of Apple Computer, Inc.

Choose 37 at www.macworld.com/getinfo

ICAL AND OTHER FREE APPS—GREAT FOR CONSUMERS BUT CHALLENGING FOR COMPETITORS

A New Day for Developers?

Apple's i-apps have gone a long way toward justifying the price Mac users pay for their machines. After all, free applications such as iMovie, iTunes, and iPhoto transform Macs from mere computer terminals into management centers for digital devices. The September releases of iCal and iSync figure to further extend those capabilities by providing users with a calendaring application and a way to coordinate information across all their digital devices.

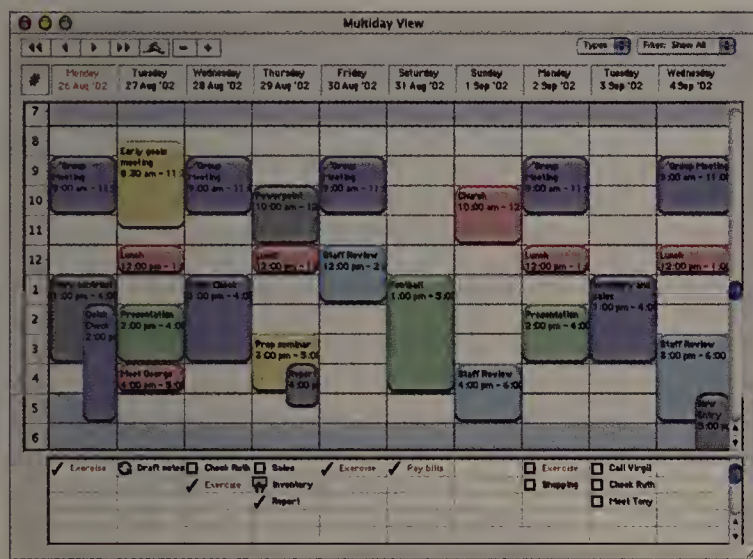
such a good deal for Mac developers. Just as makers of MP3-playing, CD-burning, and DVD-authoring products had to contend with the release of iTunes and iDVD last year (see "Toasting the Competition," *Buzz*, June 2001), iCal could mean increased competition for established calendaring programs—such as Power On Software's Now Up-to-Date & Contact and Chronos's Personal Organizer and Group Organizer—not to mention a slew of shareware and free-ware options (see "Daily Reminders").

"This is not really a new situation in the personal-information-manager market," says Robert McCullough, Chronos's vice president of product development. "The Palm Desktop software is also free and has been for several years. The reason that Personal Organizer continues to sell well is that it offers many features that just aren't available in the Palm software—or in iCal."

Apple declined to comment on the effect that free

programs such as iCal might have on its relationship with developers. As for the developers themselves, McCullough says that he supports Apple's drive to increase market share through the i-apps, but notes that the company is walking a fine line.

"We at Chronos have been developing Macintosh software since 1993," he says. "We stuck with the platform through the lean years because we like Macs and we like developing for them. However, it's not easy to compete with companies like Microsoft, Palm, and now Apple."—MATHEW HONAN



One Day at a Time iCal's release means more competition for established programs, such as Chronos's Organizer (pictured here).

"We wanted to centralize the movement and syncing of data," says Christian Thomas, product manager for iCal and iSync. "One application manages all of your PIM data." Indeed, by harnessing the Bluetooth wireless-connectivity standard, iCal will let you synchronize the calendar on your computer with a Palm handheld, a cell phone, and even an iPod, publishing the calendar, live, to the Web (provided that you subscribe to Apple's .Mac services).

But while the price of free i-apps may be right for Mac users, it's not always

Daily Reminders

COMPANY	PRODUCT	PRICE	CONTACT
Apple	iCal	free	800/692-7753, www.apple.com
Chronos	Personal Organizer	\$60	435/615-7335, www.chronosnet.com
	Group Organizer	\$100	435/615-7335, www.chronosnet.com
Microsoft	Entourage	\$499*	800/426-9400, www.microsoft.com
Palm	Palm Desktop	free	800/881-7256, www.palm.com
Power On Software	Now Up-to-Date & Contact	\$119	800/344-9160, www.poweronsoftware.com

* Sold as part of Microsoft Office.



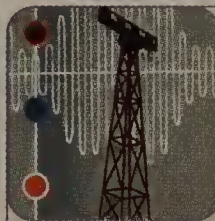
HARDWARE BEAT

Printers

Four printers from Epson (800/873-7766, www.epson.com): The **Stylus Photo 925** (\$299) and **Stylus Photo 825** (\$199) are six-color photo printers with built-in Flash media readers. The four-color **Stylus C82** (\$149) offers new Dura-Brite water- and fade-resistant inks and prints as many as 22 black-and-white and 11 color pages per minute. The **Stylus C62** (\$99) prints as many as 14 black-and-white and 10 color pages per minute. The Photo 925, Photo 825, and Stylus C62 all offer a maximum resolution of 5,760 by 720 dpi. The Stylus C82 offers a maximum resolution of 5,760 by 1,440 dpi.

Three four-color photo printers from Canon (800/385-2155, www.usa.canon.com): The **i320** (\$79) prints as many as 10 black-and-white and six color pages per minute with a maximum resolution of 2,400 by 1,200 dpi. The **i550** (\$149) prints as many as 18 black-and-white and 11 color pages per minute, while the **i850** (\$199) prints as many as 22 black-and-white and 14 color pages per minute. Those two printers have a maximum resolution of 4,800 by 1,200 dpi.

A monochrome laser printer from Xerox (800/835-6100, www.xerox.com): The **Phaser 4400** (\$999) offers a resolution of 1,200 by 1,200 dpi and prints as many as 26 pages per minute.—COMPILED BY KELLY LUNSFORD



NETWORKING BEAT

Software

LANSurveyor 7.0, from Neon Software (800/334-6366, www.neon.com): The network-management software now runs in OS X and the classic Mac OS. It features Backup Profiler, for determining data security on Mac and Windows machines, and new map topologies; it includes 20 Neon Responders for Mac OS and Windows (\$495; upgrade, \$129, or free if the program was bought after July 1, 2002).

Hardware

A wireless broadband router from D-Link (800/326-1688, www.dlink.com): The **D-Link AirPro DI-764 Dual Band Wireless Broadband Router** (\$499) features a built-in 4-port 10/100 Fast Ethernet switch and advanced fire-wall functionality. It simultaneously serves IEEE 802.11a wireless connectivity at 54 Mbps, IEEE 802.11b wireless connectivity at 11Mbps, and enhanced IEEE 802.11b connectivity at 22 Mbps.

An electrical-wiring-Ethernet bridge from PhonexBroadband (800/437-0101, www.phonex.com): The HomePlug 1.0-compliant **NeverWire 14 QX-201** device (\$129 per node) takes unused bandwidth in standard electrical wiring to create a 14MB Ethernet network.—COMPILED BY JILL ROTER

WHAT'S
HOTA Quick Look at
the World of Macs

1. Apple's newest Power Mac G4s are now shipping. The revamped machines ship with dual optical-drive bays, allowing users to not steal music faster than ever before.
2. Mac users packed Apple Stores across the country on August 23, for midnight Jaguar release. Thankfully, trained handlers kept maulings to a minimum.
3. Intuit will update its Mac version of QuickBooks for the first time since 1998. Intuit executives say the move is the result of pent-up consumer demand and the sudden realization that the Mac platform wasn't a figment of someone's imagination.
4. Microsoft plans to release an OS X-compatible version of its MSN online service. System requirements for the MSN client include a small, low-cost PC that runs alongside your Mac.

Mac OS X Updates

powered by
versiontracker
.com

4D 6.8.2

Relational-database system

Address Office 3.0

Address book and PIM for small-office and home-office users

Apple iPod Updater 1.2

Restore and update features for OS X

Barcode Toolbox 2.0.2

Adobe Acrobat and Illustrator plug-in for bar codes

BIAS Peak 3.1

Adds QuickTime 6 support for audio-editing and -mastering application

ClearDock 1.1

Changes Dock background color in OS X 10.2

Cocoa Fortune 1.3

Port of Unix utility Fortune

Dantz Retrospect client 5.0.536

OS X 10.2 client for the backup software

Discus 2.65

CD/DVD-labeling software

Font Pilot 1.0

Font manager and previewer

Game Ranger 3.0

Online service for playing and discussing network games

Granite 1.0

Font-previewing utility

InstallAnywhere Standard Edition 5.0.4

Deployment solution and installer

Intego NetBarrier X 10.0.4

OS X 10.2 compatibility for software firewall

InterView X 2.2.2

USB video-in capture product

iTunes Publisher 2.0

Exports iTunes playlists to various formats

Lexmark Z22/Z32 Color Jetprinter 2.0.5

Printer driver

PageSentry 4.1.1

Net serving, monitoring, and failure recovery

PageSpinner 4.1

Web-authoring tool adds Quartz Text Smoothing, Jaguar support

Prosoft NetWare Client 1.0.2

OS X connectivity for Novell networks

Return to Castle Wolfenstein 1.3.3

First-person shooter game beta

SilverFast Ai 6.0.1

Scanner software for most scanners

Slick Transitions & Effects 4

iMovie 2 plug-ins

Spider-Man 1.0.2

Improved audio for action game

Tri-Backup 3.12

Automatic backup and synchronization utility

USB Overdrive X 10.0.0b5

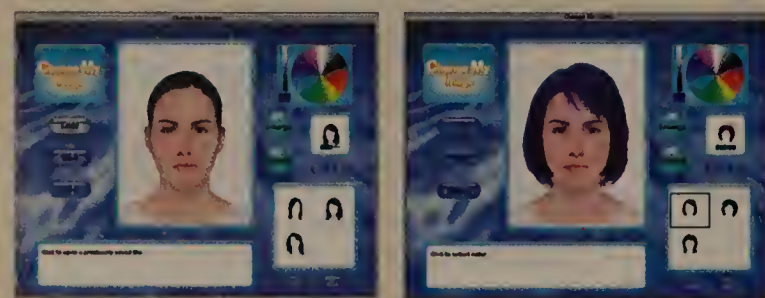
Universal USB mouse or trackball driver for OS X 10.2

For these and other current updates, visit Macworld.com.www.macworld.com/subject/updates has the latest from VersionTracker.com.

HAIRSTYLE SIMULATOR LETS YOU TRY OUT A NEW 'DO

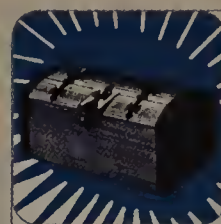
Hair-Raising Application

The realization that purple hair looked terrible with your complexion used to be immediately followed by the realization that your first realization had come too late. With Change My Image, a hairstyle-simulation program from Japan's Infinisys (www.infinisys.co.jp/), attacks of postmakeover remorse may be avoidable. The \$15 program (which runs on Mac OS 8.6 and later, including OS X) lets you virtually try on different styles—more than 100 of them—and colors. Just load a photograph into the program, choose a hairstyle, and line up both the photo and the hairstyle image. Then, using a color wheel with a brightness slider, you pick a color—everything from tangerine to aqua. But be warned: although Change My Image's color wheel contains all the hues of the rainbow, a lovely dishwater blond is difficult to approximate. The outlandish colors and a "cell-phone size" image-export option are clues as to this program's target audience: appearance-obsessed teenagers (and adults who think like them), rather than hair-



How Do I Look? Start with a picture (left); then preview a new you.

care professionals. Even so, hair grows only about half an inch per month, and that \$15 might be money well spent if you're able to convince your teenager (or yourself) before it's too late that purple hair is hard to accessorize.—CHARLES PURDY

STORAGE
BEAT

Hardware

External Drives

An external Zip drive from Iomega (888/446-6342, www.iomega.com): The **Zip 750MB Drive** comes with a FireWire interface (\$200); a USB 2.0 version (\$179) is also available. The drive will read and write to the new 750MB Zip disks (available for \$15) and older 250MB Zip disks. The new drives can read 100MB Zip disks.

Media Readers

A flash media storage reader from Addonics Technologies (408/433-3899, www.addonics.com): The **Pocket Ultra DigiDrive** can read PC Card hard drives, ATA Flash cards, and CompactFlash I and II cards. An optional four-in-one Digi Adapter also supports Smart Media, Memory Stick, Secure Digital Card, MultiMedia Card, and MicroDrive. The DigiDrive comes with either a FireWire (\$119) or a USB 2.0 (\$89) interface. The version bundled with the DigiAdapter is also available for FireWire (\$179) and USB 2.0 (\$149).

Software

RAID Toolbox for Mac OS X, from CharisMac Engineering (530/885-4420, www.charismac.com): The RAID tool and single formatter has been rewritten from the ground up in OS X (\$100; upgrade, \$40).—COMPILED BY JAMES GALBRAITH

EDUCATION
BEAT

Science and Math Software

Matlab 6.5, from The Mathworks (508/647-7000, www.themathworks.com): The technical computing program adds OS X support and includes the new JIT-Accelerator technology for increased computational speed. Version 6.5 also includes new programming and development features, an enhanced interface, and improved Web integration (\$1,900). Also, **Simulink 5** (\$2,800), for modeling, simulation, and dynamic-systems analysis, is OS X compatible. New features include multidomain modeling for mechanical, electrical-power, and wireless systems; production code generation for microcontrollers; and major improvements in DSP code generation.

A New Kind of Science Explorer, from Wolfram Research (800/965-3726, www.wolfram.com): The companion software to *A New Kind of Science*, by Stephen Wolfram, lets you replicate the book's simple computer-program experiments, which explore areas including physics, mathematics, computer science, and biology. The more than 450 experiments offer an array of inputs and parameters, and they require no programming. The program runs in OS 8.6, OS 9, and OS X's Classic mode, and it should ship by the time you read this (\$65).—COMPILED BY JILL ROTER

Keeping black & white on the run!



Minolta Co., Ltd., Osaka, Japan



16 ppm color

the speed you need to survive
magicolor® 3100 "Cheetah"

16 ppm full-color output. Precise, beautiful prints. All the result of an innovative print method called PRISMLASER Technology™. One printer ready to attack all your office needs. Watch out black and white! The fastest magicolor laser printer has just been unleashed—only **\$1,999***. For more information call **800-523-2696**.

- Built-in automatic duplexing
- Standard 10/100Base TX Ethernet®
- 1200 dpi
- 350 MHz RISC processor



© 2002 MINOLTA-QMS, Inc. The MINOLTA-QMS logo, magicolor, magicolor 3100 Cheetah and PRISMLASER Technology are trademarks or registered trademarks of MINOLTA-QMS, Inc. All other trademarks or registered trademarks are the property of their respective owners. *Estimated street price. Dealer prices may vary. Images provided by kind courtesy of digitalvisiononline.com.

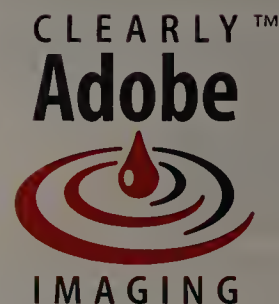
MINOLTA
QMS

The essentials of imaging

www.minolta-qms.com

Choose 105 at www.macworld.com/getinfo

11x17/1200 dpi Laser! Only \$1195



XANTÉ AW1200

XANTÉ announces the latest in office laser printing solutions. The new XANTÉ AW1200 excels in output up to 11" x 17", printing at 1200 x 1200 dpi, while maintaining the physical qualities and size perfect for the office environment. All for the low price of \$1195.

You won't break the bank or your back when you get the latest in high performance office printing from XANTÉ. Durable, small, quiet, and very affordable, the AW1200 will satisfy all of your office printing needs.



More Printing Solutions From XANTÉ:



PlateMaker 3

- Computer-to-Plate printing
- Quality plates ready press
- Resolutions up to 2400 dpi



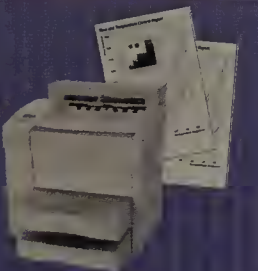
FilmMaker 4

- Computer-to-film printing
- Resolutions up to 2400 dpi
- Eliminates expensive outsourcing costs



Accel-a-Writer 3G

- Resolutions up to 2400 dpi
- Outstanding graphics printer
- Superior halftones up to 150 lpi



Accel-a-Writer 3N/DN

- Top quality office/network printing
- 20 pages-per-minute
- Output up to 13" x 18.5"



ColourLaser Series

- Photo Quality Color Printing
- Resolutions up to 1200 dpi
- XANTÉ's color management



ColourLaser 21 Series

- 21 Pages Per Minute
- Output up to 12" x 35.5"
- XANTÉ's color management
- Low cost-per-page



ScreenWriter 3

- High-quality film positives
- Resolutions up to 1200 dpi
- Output up to 13" x 35.5"



Colour ScreenWriter

- Dye-Sublimation printing
- Heat Transfers
- Output up to 13" x 19"
- Color proofing, labels, more!



ColourLaser 21

XANTÉ introduces the latest high volume and most dynamic digital printing solution. Along with the precision color performance and consistency you've come to expect from XANTÉ, you get a high speed, high quality digital print solution. The XANTÉ ColourLaser 21 is the ultimate digital color workhorse combining XANTÉ's color management expertise, product versatility, and an affordable price. Its quality is unsurpassed.

- High volume, high performance
- Oversized printing up to 12" x 35.5"
- Duplexing capabilities
- XANTÉ's color management
- Low cost-per-page
- And much more!

Lease prices starting at.....\$257 per month**

**\$0 down, 3 year lease with no payments for 90 days!
\$1 buy-out available after lease expiration.

1-800-926-8839 EXT. 2140

**Register On-Line for Your Chance to Win
a FREE XANTÉ® Adobe® PostScript® 3™ Printer.
Log on to www.xante.com/mw100 today!**

©2002 XANTÉ CORPORATION. XANTÉ and XANTÉ ColourLaser are trademarks or registered trademarks of XANTÉ CORPORATION. Adobe, PostScript, PostScript 3 and the PostScript logo are trademarks of Adobe Systems Incorporated. PANTONE® and other Pantone, Inc. trademarks are the property of Pantone, Inc. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTÉ CORPORATION. Post Office Box 16526, Mobile, AL 36616-0526, USA. Phone: 251-473-6502, Fax: 251-473-6503. www.xante.com

REVIEWS

Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

APPLE XSERVE

Server Provides Impressive Processing Power and Smooth Looks but Lacks Good RAID Implementation

BY SEAN GREATHOUSE

The Mac OS is now OS X; OS X is Unix; and Unix is the fastest, stablest server platform around. With Mac OS X Server, Apple has made the benefits of a Unix server OS available via point and click. The only thing missing from this picture has been true server hardware on which to properly run this operating system—until Xserve. We gave the \$3,999, dual-1GHz Xserve configuration a working-over and found that, while it lacks redundancy and has some design flaws, the advantages of so much G4 power in such a compact machine may make it worth your while.

Is the Xserve for You?

The Xserve is for anyone who wants to fit a lot of Mac in a little rack space—from small shops that want one powerful server tucked away in a phone closet, to video-effects houses that would benefit from putting 40 Xserves in a single cabinet. Depending on the configuration you choose, the Xserve packs as many as two 1GHz G4 processors, as much as 2GB of RAM, and as many as four 60GB or 120GB hard drives in an industry-standard 1U rack case (1.75 inches of vertical server-rack space—so you can fit more than 40 Xserves in a six-foot-tall rack).

The Xserve can also serve as a workstation in environments where equipment is often rack mounted, but keep in mind that the two 5,000-rpm blowers that cool the internal components make the Xserve much noisier than a G4 tower. Also note that it's intended only for rack mounting: at 19 inches wide and 28 inches deep, it uses too much real estate on a counter or desk, and it's not designed to support monitors or other components set on top of its case.

Out of the Box

Don't be fooled by Apple's photos of the slender Xserve, which are taken from the front of the unit. Viewed from above, it looks huge; its slight height is possible thanks to its generous 28-inch depth. The 26-pound Xserve's dimensions are standard for a 1U server but still surprising the first time you see the unit.

The Xserve's finish is similar to that of the Titanium PowerBook G4, with a solid look-and-feel. The case is rigid, so you can handle the server without twisting (and possibly unseating) cards and other internal components.

The back of the server features two FireWire, two USB, and two 10BaseT/100BaseT/1000BaseT (Gigabit) Ethernet

ports, as well as a single video port. The power connection has a clever retainer clip designed to spare you the shame of a sudden inadvertent shutdown. The final touch is standard fare for Unix servers but new to the Mac: a console-redirection port that gives you command-line access over a serial cable.

Beneath a slim CD-ROM drive, four removable drive bays dominate the front panel. Pressing on the front of a drive bay causes it to pop open, spinning down the drive and revealing a handle with which to pull the module out. Lights indicating Ethernet link, processor activity, and drive status provide both valuable information and techie-gizmo appeal. An additional front-panel FireWire port gives the digital-media crowd a place to plug in without hiking to the back of the rack.

The system-identifier button is a brilliant feature for anyone with multiple Xserves in a stack. Pressing this button turns on amber LEDs on the front and back of the case, allowing you to tag a server from the front and then easily find it again from the back.

A twist of a key activates the locking system that prevents the case from being opened, secures the drive modules, and disables the CD-ROM drive. If a FireWire hard drive was mounted before the system was locked, it remains mounted while newly attached devices are ignored. Likewise, USB connections to an uninterruptible power supply remain, but key-

board and mouse connections are blocked. Unfortunately, the key is only an Allen wrench with a fancy knurled handle—the standard locked-door approach to physical security is still your best bet.

Into the Rack

The Xserve comes with hardware and instructions for mounting in four-post and two-post racks. In a two-post installation, it can't be mounted flush against the front of the rack, so it must extend both in front of and behind the rack posts. The top and sides of the case form a light shell that you can slide off the server and mount in the rack. You then slide the server into the secured shell and lock it in with two thumbscrews. Mounting the 26-pound Xserve is a two-person job, and its flexible shell doesn't properly prevent it from falling through the bottom until it is halfway in the shell. Furthermore, we recommend that you remove the Xserve completely from the rack to service internal components.

While mounting our test unit, we discovered a serious design flaw. When you're handling or working around the Xserve, it's very easy to bump the front of a drive bay, popping the handle out and disabling the hard drive. If you do this to the boot disk on a running Xserve, you get an instant system crash and possible data loss. The system lock doesn't currently prevent this, but Apple is working on solving the problem.

Uptime Is Everything

If your desktop is down for an hour, you lose an hour of work. But if a server is offline for an hour, your entire company loses an hour of work. To provide maximum uptime, servers use monitoring and redundancy—the Xserve excels at the former and all but omits the latter.



The Apple Xserve Shown here is the Xserve's front (top) and back (bottom). Its slight height belies its 28-inch depth.

34 Network server
Apple Xserve

35 Database software
FileMaker Pro 6

36 Multimedia application
QuickTime 6 Pro

37 Relationship-finding software
Six Degrees

38 DV camcorders
Canon Optura 200MC, JVC GR-DVM96U,
Sony DCR-PC120BT, Sony DCR-TRV50

40 Digital video recorder
EyeTV

41 Video-editing software
Avid Xpress DV 3.5

42 Music-sampling and -synthesis tool
Reason 2.0

44 Network analyzer
NetMinder Ethernet 5.0

45 Mathematics software
Mathematica 4.2

46 E-mail-filtering program
Spamfire 1.2

47 3-D-animation software
Carrara Studio 2

48 iMovie plug-ins
Slick Transitions and Effects Volume 3,
Slick Transitions and Effects Volume 4

49 Virus-protection software
Norton AntiVirus 8.0

50 Music player
Apple iPod 20GB

50 Dock-replacement utility
WorkStrip X

53 Reviews in Brief
Bravo Effects and Echo Transitions, Kensington
StudioMouse, MacJournal 2.1, Pantone Color
Cue, WeatherPop Advance 1.5, Who's There
Firewall Advisor 1.2

55 The Game Room
pop-pop, Medal of Honor: Allied Assault, Beach
Head 2002, Clive Barker's Undying

OUTSTANDING: VERY GOOD: GOOD: FLAWED: UNACCEPTABLE:

By sensing and reporting hardware status, a server can warn a network administrator of potential problems, and the Xserve is full of sensors. It knows whether (and how fast) the fans are running. It knows how much power it's using and how hot it is. It takes advantage of diagnostic chips on the hard drives to predict drive failures, and it monitors its network-connection status.

All of this vital information is reported via the well-designed Server Monitor, a remote-management application that works only with the Xserve. Server Monitor can be set up to notify you of problems via e-mail, so warnings will also reach your e-mail-enabled cell phone or pager. Remote management is enabled via an extensive suite of graphical, command-line, and SNMP remote-management tools. In addition, if you can't respond to a temperature warning, the Xserve should shut itself off before overheating causes it to fail.

Unfortunately, the Xserve lacks redundant fans or power supplies, and it lets you create redundant hard drives only via the feature-poor and unreliable software-RAID implementation included in Apple's Disk Utility. When we tested our Xserve with two 60GB drives formatted as a mirrored array, Disk Utility didn't let us mirror a drive on which we already had data, forcing us to erase all drives in the RAID set and start over. (Our advice is to decide on your setup *before* you begin to configure your server.)

When we removed a drive canister to simulate a failure, the Xserve ran without interruption, although it failed to alert us that a drive had been removed or that the RAID set was broken. We also experienced serious difficulty in rebuilding the mirrored drive. As

with any system you rely on in a crisis, you should test failure and recovery behavior yourself, before the server is in production. For now, if you need the data-loss insurance provided by redundant hard drives, we recommend that you use an external hardware RAID.

If a component does fail, the Xserve can be quickly serviced with the optional spare-parts kit, but at \$1,549 to \$2,509, it's best suited for installations with multiple Xserves. Apple also offers AppleCare Premium Support for both the Xserve hardware and your OS X Server software, at \$950 for three years of around-the-clock phone and e-mail support with 4-hour or next-day on-site service.

Macworld's Buying Advice

The Xserve packs intense G4 processing power in a small form factor, so if your setup demands server-side processing, the Xserve is for you. As a storage server, the Xserve delivers mixed results. With as much as 480GB of drive space, there's plenty of capacity, but the current lack of reliable on-board RAID limits the Xserve's use to applications where uptime and data-loss protection aren't of primary importance, or environments that utilize external redundant storage.

RATING:

PROS: Excellent status-reporting and remote-management tools; huge storage capacity; rack-dense design puts enormous power in a small space.

CONS: Lack of hardware RAID and decent software RAID limits use for some applications; insecure drive-bay latches can bring your server down.

PRICE: 1GHz and 256MB RAM, \$2,999; dual-1GHz and 512MB RAM, \$3,999

OS COMPATIBILITY: Mac OS X

COMPANY: Apple Computer, 800/538-9696, www.apple.com

FILEMAKER PRO 6

Database Software Enhances Ease of Use and Adds XML Support—without Rocking the Boat

BY SCOTT LOVE

If you're a Mac user, chances are you're well acquainted with FileMaker Pro. It has been part of the Mac's history since 1985, and version 6 retains the program's legendary ease of use. Users will appreciate what may likely prove to be this release's best feature: extending and constraining found sets. FileMaker Pro 6 also offers XML import and export capabilities; however, this version may leave you wanting more when it comes to security enhancements, multithreading, and innovation.

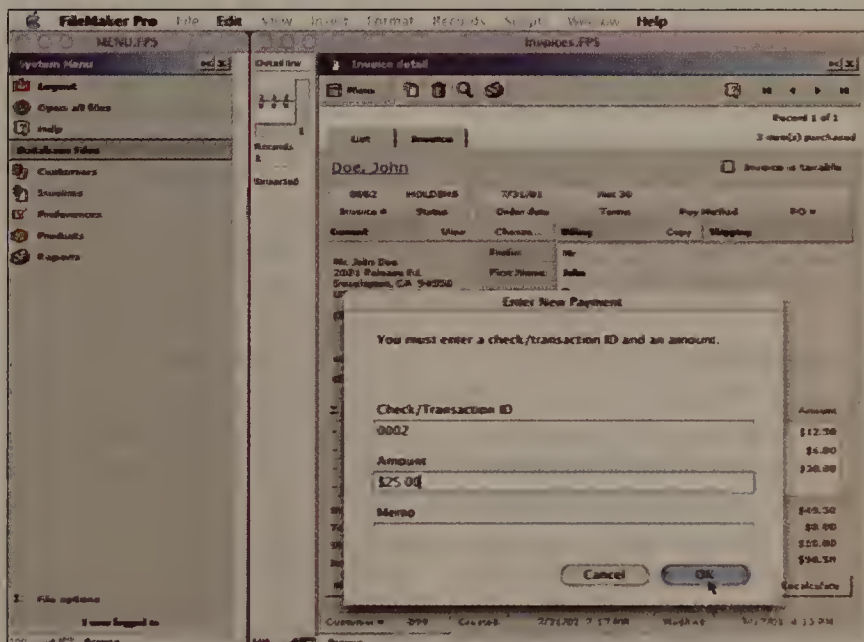
Day-to-Day Use

One of FileMaker's strengths is its ability to perform complex searches. In the past, though, it always replaced one found set with the results from the next. It's now possible in Find mode to refine a set of records further by performing subsequent requests with the Constrain Found Set

option, which lets you apply a second search to only those records within the current group. Likewise, Extend Found Set allows you to add records to the overall group. These functions are fully scriptable and should help you better manage data sets.

Another small but welcome change is that you no longer have to go through the Sort dialog box or create a script for basic sorting requests. Instead, you can pull up a contextual menu with a single click of the mouse and perform simple sorts on any field of a given layout.

When you need to make global changes, a new Find/Replace feature lets you search across fields and records and change data within them. You could, for example, universally change a misspelling of *San Francisco* wherever it occurred in your database. Developers will value this handy way to avoid writing



In the Driver's Seat FileMaker Pro 6's Custom Dialog boxes let developers create customized information requests and make sure that end users fulfill them.

some parsing functions, but be warned: the fields you wish to modify must be on the current layout for this function to be effective, and it applies only to a current found set.

Diving into Development

For developers, the big news is Custom Dialog boxes. While not as flexible as the popular Troi Dialog plug-in, they do let you use calculation fields to display specific dialog messages to specific users—for example, “Chris, ‘someday’ isn’t a valid deadline.”

Developers can also ensure that end users fulfill data requests by allowing them to modify as many as three fields from within these boxes. This lets developers do things such as highlight data problems in a dialog box, where a user won’t be able to miss them, or to have the user enter an internal password for special access to certain layouts or scripts.

These Custom Dialogs are great, but the lack of menus, check boxes, or other niceties limits the options you can exploit to get the information you need.

Getting FileMaker to Talk

FileMaker has rightly boasted of version 6’s XML integration as a key feature, and the world of serious data management dictates that all modern applications must work with XML. FileMaker Pro 6’s XML features finally offer developers an alternative to the trials of dealing with ODBC drivers, kludged systems built with merge files, exports, AppleScript, and so forth.

But XML isn’t for the faint of heart, and good luck finding any mention of it in FileMaker’s manual. To the company’s credit, it offers decent XML resources at www.filemaker.com/xml/.

Showing Potential

Overall, FileMaker Pro 6 has some welcome additions; where it falls down is in its omissions. Security is increasingly important to database developers these days, and it’s a shame that FileMaker’s obscure security dialog boxes haven’t changed much since version 3. It’s impossible to apply security settings globally across a

united group of files, you can’t easily maintain more than a handful of login and password combinations, and the group screen’s user interface is still incomprehensible and counterintuitive.

It would be nice if FileMaker had some common programming elements as well, mainly for power users. For example, many developers would love to be able to copy and paste a selection of script steps from place to place (rather than using only the limited import function), or better yet, to have the option of working in a text editor. FileMaker is still missing any sort of arrays—which would finally make it possible to control, say, repeating fields—and there’s no way to build functions within elaborate calculations or scripts.

Finally, the FileMaker client is still single-threaded, so it can perform only one task at a time—an issue for Web-hosted databases and other systems that use the Web Companion plug-in. Moreover, you can have only 50 files open at once, and FileMaker’s client-server model still depends on high traffic, making it difficult to deploy across the Internet or a WAN.

Macworld’s Buying Advice

All told, FileMaker Pro 6 is a strong upgrade—the addition of XML is a must if you need to have FileMaker interact with another system. While we may wonder whether version 6 can justifiably be called a major release, the new features it contains are quite helpful, and FileMaker remains the easiest database to use or develop for on any platform. □

RATING: ★★★★★

PROS: Handy Custom Dialogs; significantly enhanced XML import and export; flexible extending and constraining of found sets.

CONS: Security still largely dates back to version 3; single-threaded client.

PRICE: \$299; upgrade, \$149

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: FileMaker, 800/725-2747, www.filemaker.com

QUICKTIME 6 PRO

Apple’s Multimedia Technology Adds Welcome Compression Features and Instant-On Streaming

BY CHRISTOPHER BREEN

After months of delay due to MPEG-4 licensing issues, Apple has finally released QuickTime 6. Available in two versions—the free Standard version and the \$30 QuickTime Pro—the latest iteration of this venerable multimedia technology is worth the wait. Both versions allows you to play MPEG-4-encoded movies and more easily navigate streaming Web content. In addition, QuickTime 6 Pro (the version we review here) lets you create audio files smaller—and of higher quality—than those encoded in the ubiquitous MP3 format, and it offers MPEG-4 video encoding.

Big Sound, Small Files

QuickTime’s significant improvements lie beneath the surface. Likely to pique the interest of audio enthusiasts is the inclusion of Dolby Laboratories’ Advanced Audio Coding (AAC) codec—the audio arm of QuickTime’s MPEG-4 encoder. This codec can create audio files nearly indistinguishable from the uncompressed original, at around 7 percent of the original file’s size. We encoded a 4-minute, 40.4MB AIFF file with QuickTime 6’s AAC codec (at the default resolu-

tion of 96 Kbps) to produce a 2.8MB file. This file sounded distinctly clearer than a 4.4MB file produced with iTunes’ MP3 encoder (at the default resolution of 160 Kbps).

Regrettably, AAC encoding is absent in most QuickTime-related applications. Although iTunes can play MPEG-4 audio files, for example, it can’t encode files in this format. Likewise, you can’t export MPEG-4 audio from iMovie.

Screen Test

Although video compressed with the included MPEG-4 video codec lacks the clarity of video encoded with Sorenson Media’s Sorenson Video 3 Pro codec (\$299; 801/287-9400, www.sorenson.com), the Sorenson codec can’t match MPEG-4’s encoding speed. On a 933MHz Power Mac G4 running Mac OS X 10.1.5, we encoded a 78.1MB, 1-minute, 320-by-240-pixel QuickTime movie at best quality with the MPEG-4 video codec, the Sorenson Video 3 Pro codec, and the standard (free) version of the Sorenson Video 2 codec. Sorenson Video 3 took 2 minutes and 7 seconds to compress the file to 48.4MB, Sorenson 2 spent 4 minutes and 3 seconds encoding



A Word from Our Sponsors In QuickTime Player 6, Apple has abandoned more-helpful TV-channel links in favor of those with a more commercial nature.

the movie to 33.2MB, and QuickTime 6's MPEG-4 encoding took a speedy 40 seconds to compress the file to 45.2MB.

The file we encoded with the Sorenson Video 3 Pro codec most closely matched the original movie in detail and color accuracy. In comparison, the MPEG-4-encoded version looked slightly washed out, and its edges weren't as crisp. However, the MPEG-4 version was clearer than the file encoded with the free Sorenson 2 codec. In fact, the 33.2MB Sorenson 2-encoded file looked only as good as the MPEG-4 version of the movie encoded at medium quality—which was a very small file at 16MB.

Streamlined Streaming

QuickTime 6 introduces the Instant-On feature, which allows those with broadband Internet access (112 Kbps or faster) to view streaming content more quickly and move from one location in the stream to another with little pause in the action. This is a welcome feature when it works. In our tests, Instant-On was less than instant on a congested network—leading to stuttering playback and pauses when we scrubbed to a new location. Also, you must have access to Real Time Streaming Protocol (RTSP) ports 554 and 7070—ports commonly blocked by firewalls—to realize the full benefit of Instant-On. Although you may be able to unblock those ports on a personal firewall, your

> continues on page 51

RATING: ★★★★★

PROS: AAC-encoded files are small and clear-sounding; MPEG-4 encoding is fast; Instant-On enhances the viewing of Web-based content on compatible systems.

CONS: Links in interface are less useful than channels in earlier versions; not all new capabilities are extended to other QuickTime-compatible applications.

PRICE: \$30

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Apple Computer, 800/692-7753, www.apple.com

SIX DEGREES

Innovative Software Watches Your Every Move and Helps You Retrace Your Steps

BY JENNIFER BERGER

If you sometimes spend far too much time looking for things you just *know* are on your Mac, Creo's inventive software for grouping and presenting information, Six Degrees, may be right up your alley. You could use a combination of Mac OS's built-in search utility, Microsoft Entourage's Find function, and your own intuition to locate your stuff, but Six Degrees saves you that trouble. The OS X-only application lets you pinpoint e-mail messages, contact information, and files anywhere on your computer—even if you don't remember where you put them, who sent them to you, or their file names.

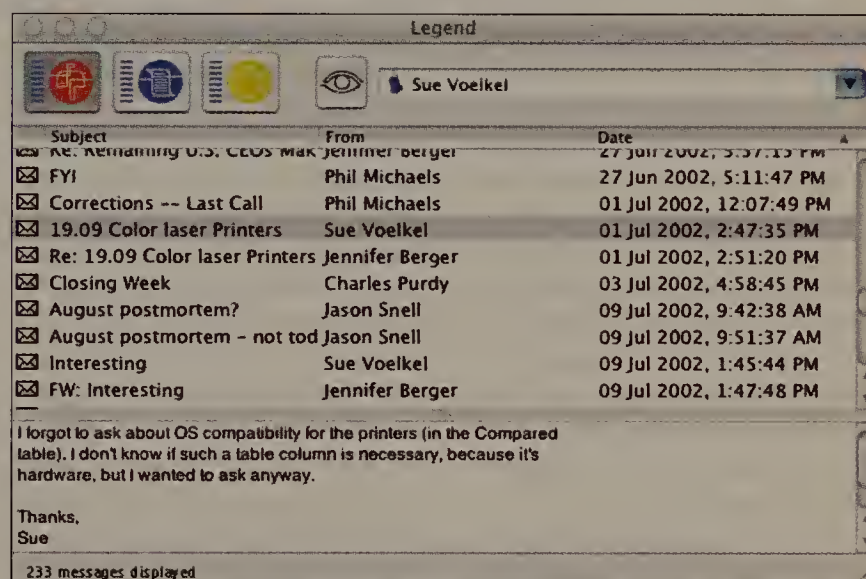
In our tests, Six Degrees proved itself trustworthy and truly innovative, but it had the roughness you'd expect from a 1.0 release. It needs some performance improvements, and the number of programs with which it's compatible is quite limited. Nonetheless, Six Degrees has the potential to change the way we use our Macs.

The Big Picture

Six Degrees is a one-window utility that runs in the background while you work, "watching" every click you make and then finding the connections between what you've clicked on and what Six Degrees perceives to be related to that item. One instance where this comes in handy is when you want to find your way back through an e-mail thread and its attachments. (As of this version, Six Degrees' e-mail component works only with Entourage X, though Creo intends to expand e-mail-client support.)

As a real-world example of Six Degrees in action, let's say that you and your colleague Sharon are working together on a proposal. And during a harried day last week, you forgot to save the

most recent version in its usual place. Now you need to find it, and the only thing you recall is that the proposal was attached to an e-mail message Sharon sent you. To use Six Degrees to find the file, you'd simply click on Sharon's name in your Entourage Address Book, go into Six Degrees, sort the documents



It's All about Connections Six Degrees finds all e-mail messages, documents, and people's names related to the item in its Focus field (top right); in this case, results are for messages involving a person named Sue Voelkel.

associated with Sharon by date, and boom—there's the proposal. It'll take about 20 to 30 seconds for the search to run its course; but locating a file this way is far more expeditious—and less frustrating—than racking your brain and making do with limited search utilities.

Working Its Magic

Six Degrees displays your results in its easily navigable interface, called the Legend, which offers a clean and intuitive design consisting of four buttons, the Focus field (which contains the subject of your search), a results window, and a blue progress bar. When you click on a file's icon or open a file anywhere on your Mac, Six Degrees displays that file's name in the Focus field and uses it as the starting point for your search. The program also adds the file name to the field's pull-down

menu, which stores your entries and allows you to revert to them at any point.

You then use the three buttons to the left of the Focus field to see and sort results by related e-mail messages (red button), files (blue button), or people's names (yellow button), in the results window. You can change the focus, and thus narrow the search, by dragging a result up to the Focus field or by clicking outside of Six Degrees on a file icon anywhere in the Finder, an e-mail message, or name in your Entourage Address Book. After

a bit of practice, this becomes a very fluid process that lets you home in on exactly what you're looking for.

Enhancing the Basics

Six Degrees is not only powerful but also very complex, and it can become unwieldy and confusing if you're not sure how to use it. Six Degrees is always busy forming new connections in the back-

> continues on page 51

RATING: ★★★

PROS: Innovative; very easy to use; well-designed interface; clear, concise printed user guide.

CONS: Can cause serious system slowdowns; finds results slowly; limited application compatibility.

PRICE: \$99

OS COMPATIBILITY: Mac OS X

COMPANY: Creo, 604/451-2700, www.creo.com

COMPACT DV CAMCORDERS

Diminutive but Feature-Packed Cameras Deliver

BY BEN LONG

You already know that having a digital-video (DV) camcorder lets you use your Mac to edit high-quality video. But there's more: DV camcorders not only provide excellent image quality and superfast FireWire capabilities, but also offer the advantage of being much smaller than most of their analog counterparts.

We put four of the latest compact, single-CCD DV camcorders through their paces and found that you don't necessarily have to sacrifice features or quality to get a camcorder that fits in a coat pocket or handbag. Although the Canon Optura 200MC, JVC GR-DVM96U, and Sony DCR-PC120BT and DCR-TRV50 are small, they sport lenses, feature sets, and ports similar to their larger siblings—and produce images of the same quality.

Each of these camcorders has an on-board flash, a removable memory card, and a long list of DV features, and each can take still shots. You do pay a premium for small size, though: the models in our roundup cost between \$1,200 and \$1,900, almost twice as much as larger-bodied models with comparable features. But if portability is your primary concern, these camcorders are the way to go.

Form and Function

As far as design and no-hassle shooting are concerned, any of

these models is a good choice. The Optura 200MC, GR-DVM96U, and DCR-PC120BT have an upright design; the lens is at the top, and a flip-out LCD screen opens from the left side. These camcorders are roughly the size of a portable cassette player but considerably thicker. The DCR-TRV50, with its more traditional, horizontal design, was the largest of the group, while the JVC GR-DVM96U was the smallest. Thanks to their low weight (between one and two pounds), small size, and intuitive control layout, each of these camcorders can be operated with one hand.

The three upright models share other design traits. In addition to their flip-out LCDs, they have traditional eyepiece viewfinders, which are a must for use in bright light or for times when the LCD would suck the remaining life out of low batteries.

Each model has a FireWire port for exporting video to your Mac for digital editing, as well as S-Video and composite connections for attaching the camcorder to monitors, TVs, or other analog-video devices such as cameras and console video decks. All but the GR-DVM96U also provide for analog input, which allows you to dub older analog formats to DV for editing on your computer.

All but the GR-DVM96U offer jacks for an external micro-

phone, and each model sports headphone jacks. The built-in microphones on these camcorders leave much to be desired, so if you intend to record concerts or other performances, you'll want to invest in an external microphone.

Shooting

As you'd imagine, these camcorders' compact designs make them very comfortable to use. Though they all have their idiosyncrasies—the DCR-TRV50, for example, has a very fast zoom control that makes subtle zooming difficult at first—none are so severe that you can't get past them with a little practice.

All provide separate modes for shooting and playback, so they're easy to learn if you've used other models. However, they also offer modes for recording to the memory card instead of to tape. For shooting still photos or video for the Web, this is a great timesaver, as it eliminates the trouble of using a video-editing program to capture the images from your tape. Instead, you can simply use a USB cable to transfer stills directly to your Mac.

With its larger, more standard design, the DCR-TRV50 is also the heaviest of this bunch—weighing in at 1.75 pounds; therefore, it's not quite as comfortable to hold. If you expect to use a tripod often, then this camera's larger 3.5-inch LCD screen

makes it a good choice. Though the other models have nearly identical designs, we like the Canon camcorder for its simple control layout. While both of the Sonys are well designed, their preponderance of features makes them more complicated to use. The JVC lacks some helpful features, such as a jack for an external microphone.

Lens quality is the factor that has the greatest impact on image quality. An inferior lens will affect the camcorder's ability to reproduce color, and it can cause images that aren't sharp; poor-quality lenses also distort images that are zoomed to an extreme. Fortunately, none of these camcorders exhibited serious lens problems. Their lenses fall somewhere in the area of a 40mm–400mm zoom lens—plenty of power for most situations. When compared with the other models, the Optura 200MC is particularly weak on the wide-angle end, but it makes up for that with a stronger telephoto capability.

All of these models offer digital-zoom features, which attempt to simulate the effect of a stronger telephoto lens by digitally enlarging and cropping an image. The results, though, are noisy low-resolution images, and you'll be better served by deactivating digital zoom.

The small, slim batteries included with all of these camcorders are short-life batteries that offer less than an hour of power. You may want to invest in extra batteries or higher-capacity batteries, which cost between \$80 and \$100. Note that longer-life batteries are physically larger



Close-Up We reviewed (from left to right) the Canon Optura 200MC, the JVC GR-DVM96U, the Sony DCR-PC120BT, and the Sony DCR-TRV50.

Compact DV Camcorders Compared

COMPANY	PRODUCT	MOUSE RATING	PRICE	CONTACT	OPTICAL ZOOM/DIG- ITAL ZOOM	STILL-IMAGE RESOLUTION*	DIMENSIONS**	WEIGHT***	PROS	CONS
Canon	Optura 200MC	★★★★½	\$1,899	800/652-2666, www.canon.com	10×/200×	1.3	2.5 × 5.1 × 5.1	1.20	Very good color tone and quality; very good color accuracy; excellent image stabilization.	Oversharpening images.
JVC	GR-DVM96U	★★★	\$1,200	800/526-5308, www.jvc.com	10×/200×	1.0	3.8 × 2.1 × 4.5	1.10	Good image quality; very small.	No input for dubbing analog to DV; no jack for external microphone; resulting images are not very sharp.
Sony	DCR-PC120BT	★★★★	\$2,000	800/571-7669, www.sony.com	10×/120×	1.5	2.4 × 4.9 × 4.9	1.50	Good image quality.	Produces slightly oversaturated color; oversharpening images.
Sony	DCR-TRV50	★★★★	\$1,600	800/571-7669, www.sony.com	10×/120×	1.5	2.9 × 3.6 × 6.6	1.75	Very good image quality; large, 3.5-inch LCD screen.	Largest and heaviest of the four; oversharpening images.

* In megapixels. ** In inches (width × height × depth). *** In pounds.

and will add a bulky protrusion to a slim camera.

When it comes to LCD quality, these camcorders finish in a tie. Each provides an LCD screen that delivers fairly accurate color and good detail. While the Optura 200MC's LCD screen was the most color-accurate, none of these displays are a substitute for a good field monitor if you're serious about color and image quality.

Though a small, light camera is much easier to pack and carry than the big, shoulder-mounted VHS camcorders of old, less is not always more when it comes to shooting. Low weight can make a camcorder difficult to hold steady. To compensate, all of the models offer excellent optical image stabilization. This seemingly magic technology manages to smooth out the slight vibration that comes from holding a camcorder in your hand. Image stabilization is no substitute for a tripod, but it does remove enough jitter to turn otherwise annoyingly shaky handheld footage into stable, easy-on-the-eyes video. Image stabilization is particularly important at long focal lengths where even a little bit of motion is very noticeable. The Optura 200MC's video was just a little steadier than that of the Sony and JVC cameras.

All of these DV camcorders offer automatic-exposure features that yield appropriate exposures for most situations, but there will still be times when you need to take control

of the camera to compensate for challenging lighting—such as shooting into bright windows or sunlight—or other difficult shots. Each also offers special preprogrammed modes for backlit scenes, sports photography, sand or snow, and objects illuminated by a spotlight. When shooting in these modes, the camcorder simply prioritizes shutter and aperture settings that are appropriate for these situations.

Image Quality

Image quality should be your main criterion when you select a camcorder, and all of these cameras deliver images that are much better than what you can get from consumer analog formats such as Hi8 or VHS. The good news about DV is that you really can't go wrong when choosing a camcorder. However, the color and overall image quality of the Optura 200MC and DCR-TRV50 make them the standouts in this group. Though the lowest common denominator of image quality in the DV format is pretty high, some cameras do yield better images than others.

All the camcorders in this roundup deliver good color, contrast, and detail in a variety of lighting situations, but each has its own image peculiarities. The DCR-PC120BT, for example, provided slightly oversaturated color, with reds that tended more toward magenta. Surprisingly, the DCR-TRV50, which seems to have an identical lens and

almost identical feature set, produced slightly more-accurate and much less saturated images.

The Optura 200MC mirrored the DCR-TRV50 in terms of overall color tone and quality, while the GR-DVM96U displayed slightly more color saturation, though not as much as the DCR-PC120BT. To our eyes, the less saturated images looked better, leading us to favor the Optura 200MC and DCR-TRV50 for color reproduction.

Overall, the GR-DVM96U produced images that were consistently softer than those from the other camcorders. Image detail was not as good, and images were less pleasing overall.

Unfortunately, all of these camcorders suffer from a problem common to single-CCD video camcorders: oversharpening. Like digital still cameras, DV camcorders employ sharpening algorithms to improve their images, and these camcorders all go way too far; they produce images with ugly aliasing patterns that appear when an object, or the camcorder, moves about. We were very disappointed to see that not one of these models offers a choice of sharpening levels. These annoying artifacts noticeably separate this class of cameras from the higher-quality (but larger in size) 3-CCD cameras that fall into this price range. Again, the Optura 200MC wins out over the Sony models for its slightly less aggressive sharpening.

Still-Image Quality

All of these camcorders offer 1-megapixel image sensors for shooting still images. Though these sensors offer no improvement in video quality, they do yield a 1-megapixel still image. To accommodate still shooting, all of these camcorders include a media slot (MemoryStick on the Sony cameras, Multi-Media Card on the others), for storage of still images, and pop-up flash units for low-light still photography.

Though the idea of a single, small device that can shoot high-quality video and still photos is very enticing, it is, unfortunately, just an idea at this point. The still-image quality of these camcorders is far lower than what you could get from a \$200 1-megapixel digital still camera. All of these DV camcorders produced noisy stills that lacked detail and were plagued by artifacts; in a pinch, they might be acceptable for simple snapshots and a few other types of still photos.

Macworld's Buying Advice

Each of the four DV camcorders we tested performed some tasks better than others. But we highly recommend the Canon Optura 200MC as the best overall value. Though it suffers from some oversharpening, its overall image quality, satisfactory feature set, and extraordinary image stabilization make it an excellent buy if you need a small, capable DV camcorder. □

EYETV

Inventive Video-Recording Solution Heralds the Close of the Mac-TV Gap, Despite Some Quirks

BY JONATHAN SEFF

You've probably heard of services such as TiVo and ReplayTV—you may even use one of them. Now El Gato Software's EyeTV brings the concept of the personal digital video recorder (DVR) to the Mac, letting you record shows directly to your hard drive so you can watch them whenever you want. EyeTV isn't for everyone, and it has a few kinks that need to be worked out, but it's a very appealing first step toward integrating your Mac with the latest TV-watching technology.

The Basics

EyeTV's hardware is a white box about one-quarter the size of a set-top DVR, and it's powered by USB from your Mac. The box contains a 124-channel cable tuner and a hardware encoder that turns an incoming signal into MPEG-1 video in real time. On the outside of the box are a jack for a standard coaxial cable; composite RCA jacks that let you capture video from a VCR, camcorder, or other analog source; a USB port for connecting EyeTV to your Mac; and lights that indicate the recorder's status.

It's the software, however, that makes EyeTV not just a USB video-capture device but a full-fledged DVR. Once you use EyeTV 1.0.2's simple Setup Assistant, you're ready for prime time and can begin watching live TV on your Mac. A floating on-screen interface that looks like a remote control gives you access to functions such as play, pause, record, jump (for skipping 30 seconds at a time—ideal for avoiding commercials), and instant replay (for jumping back 7 seconds). Although EyeTV

doesn't come with a handheld remote, Keyspan's \$49 Digital Media Remote (510/222-0131, www.keyspan.com) is compatible with EyeTV.



Techie TV EyeTV plays live and recorded programs, and it lets you control both with an on-screen remote.

The Live Stuff

Like other DVRs, EyeTV has a recording buffer that captures whatever you're watching—it's this feature that allows for conveniences such as pausing live TV and using the instant-replay function. While TiVo's buffer is set at 30 minutes, you determine how much hard-drive space EyeTV puts aside for its buffer, which can accommodate much more than 30 minutes. But unlike TiVo, EyeTV doesn't let you record an entire program if you begin recording after it has started.

You can view live programs in windows of several sizes (even as large as the full screen) as you watch them. But viewing them at anything larger than the Normal Size setting, which is a very small 320 by 240 pixels, will result in a slightly pixelated and blurry picture.

One nagging problem is that EyeTV takes several seconds to actually change a channel after you click to change it, so EyeTV isn't a good option for channel surfers.

Scheduling Recordings

You can record a program simply by clicking on the record button on EyeTV's on-screen remote or by manually inputting start and stop times for a particular channel, as with a VCR—but the real power of a DVR lies in its ability to schedule programs with much less fuss.

EyeTV gives you access to upcoming program listings via a Web site, TitanTV.com. The listings are free, unlike those offered with set-top DVRs: on top of hardware costs, TiVo charges \$12.95 per month or \$249 for a lifetime membership; ReplayTV charges \$250 for a lifetime membership. (One caveat is that you must use Internet Explorer to access the TitanTV.com listings.)

When you find a program you want to record, click on the red record icon in the listing on the Web site. Click again, and your browser downloads a small file that tells EyeTV what to record and when. From within the EyeTV software, you can also schedule manual recordings, pad them on either end, and create recordings that repeat daily and weekly.

One important difference between EyeTV and set-top DVRs is that a set-top DVR is a computer that's always running, but using EyeTV requires that your Mac be on and awake whenever you want to record. EyeTV won't start up your computer, nor will it wake your Mac from sleep to start a recording.

Image Quality

The amount of hard-drive space EyeTV uses is hardly paltry, but it's reasonable given the picture quality you get. The size of recordings always appears on your monitor at 320 by 240 pixels, but the quality is not as good as that of MPEG-2-quality DVRs. You can pick one of two quality settings for recording your shows. The Normal Size option uses a data rate of 170 Kbps, which translates to about

615MB of hard-drive space per hour; the high-quality option is double the data size, and it looks better.

You can pick either option for all shows, but currently the software doesn't allow you to record individual programs at different quality settings. You can also opt to record to any hard drive you want, and the number of hours you can store depends solely on the size of your drive.

Once you've recorded something, you get to take advantage of the nonlinear, hard drive-based benefits of EyeTV. Just as with a DVR, you can watch any program in any order and delete individual shows. You watch programs from within the EyeTV viewer, and can do so at any size, just as when you use EyeTV to watch live TV.

EyeTV also gives you the power to permanently archive your shows after you've watched them. You can save them as QuickTime MPEG-1 files, playable on any Mac (or PC) with QuickTime Player. Also, you can burn standard-quality videos to a VideoCD, which will play on computers and many newer set-top DVD players.

Macworld's Buying Advice

EyeTV is not a direct replacement for a set-top DVR, but it brings most of the benefits of DVRs to your Mac—and in some cases adds to them. At only \$199 and no monthly fees, the price isn't bad. And for anyone who travels often with a laptop—or who wants to use a Mac as a primary TV viewer or video archive—EyeTV is a very creative solution. □

RATING: ★★★★★

PROS: Easy to use; recording time limited only by your hard drive space; free program listings; can save to QuickTime and VCD formats.

CONS: Mac needs to be on and awake to record; slow response time with changing channels; programs can only be recorded at default quality.

PRICE: \$199

OS COMPATIBILITY: Mac OS X

COMPANY: El Gato Software, www.elgato.com

AVID XPRESS DV 3.5

Answer to Apple's Final Cut Pro Was Worth the Wait

BY ANTON LINECKER

When Avid announced that it was releasing an OS X-only version of its formerly Windows-only Xpress DV professional video-editing software, many video pros immediately took notice. With more than 100 real-time effects, real-time color correction, and strong media-management tools, Xpress DV's feature set easily rivals that of Apple's Final Cut Pro. Video editors who use Macs will now have to choose between the two programs.

That Avid Feeling

Avid Xpress DV 3.5 comes in two consumer flavors, both of which work only on G4 systems: Xpress DV and Xpress DV PowerPack. The latter includes Avid's FilmScribe, a matchback program for generating film cut lists, and full versions of Boris FX 6.1 and Graffiti 2.1. Xpress DV ships with both the OS X and the Windows XP software, although you can run only one version at a time because the program requires a USB dongle.

For seasoned Avid professionals, Xpress DV is like manna from heaven—it feels and works like any other Avid product, such as the high-end Symphony. You can even quickly personalize Xpress DV to resemble your favorite Avid system by importing your user profile from one to another.

But for loyal Final Cut Pro users, Xpress DV may be daunting at first. Its interface is radically different from Final Cut Pro's, as is its workflow (for example, you may wonder how to apply an effect). But once you get past this unfamiliarity, Xpress DV shows its true colors: it's a program for serious video editors.

Editing with Xpress DV

Editing with Xpress DV is less tactile than with Final Cut Pro (for example, although you *can* grab clips and slide them around, you won't tend to work that way), but it's still effective and efficient.

It also runs remarkably well in OS X, something that took Apple two updates to achieve with its OS X version of Final Cut Pro. (One editing feature the Avid faithful will surely miss is the JKL Trim mode, found in higher-end Avid systems, for changing edit points on-the-fly.)

In addition to standard capture methods, Xpress DV offers the Record tool, an option that lets you log your clips as you digitize them—a nifty little time-saver. Moreover, Xpress DV has a DV scene extractor that divides your media into subclips based on where your DV camera started and stopped recording.

When it comes to real-time (RT) effects, Xpress DV openly challenges Final Cut Pro. Xpress DV has more than 100 such effects, including a broad range of blend, wipe, key, matte, and motion effects. And Xpress takes a different approach to playback of RT effects. Where Final Cut Pro plays back only effects it knows it can play without dropping frames, Xpress DV plays back all RT effects to the best of its ability. In some cases, if you've stacked effects and titles, this results in some stutter, but the preview is still useful. Final Cut Pro, on the other hand, forces you to render effects first, defeating the purpose of a RT preview. (Xpress DV lets you toggle between a RT mode and a DV mode. In DV mode, you'll need to render all effects to play them.)

Like Final Cut Pro's, Xpress DV's RT effects previews don't travel over FireWire. But you can see the effects on a large monitor if you have an ATI Radeon video card in your desktop system or a PowerBook G4 with an S-Video-out port.

Xpress DV 3.5 has two settings for video playback: High Quality, which limits the number of RT effects, and High Performance, which lets you play many more RT effects—at the expense



Expand Your Color Palette Via a split screen, Avid's Color Correction mode lets you compare your adjusted color setting with your clip's original color. Snapshots of previous and upcoming scenes help you maintain color continuity.

of video quality. The substantial impact on video quality with the latter option makes lip-synching difficult to recognize. This setting is helpful when you're previewing very complex effects sequences, but it should not be used for normal editing.

Color Correction

Xpress DV offers a powerful color corrector, refining the process beyond even Final Cut Pro's 3-way Color Corrector. Xpress DV displays three video windows while in Color Correction mode. The middle window shows the current scene, and the windows on either side show the previous and next scene. This way, you can see how the scenes work with one another. You can also change these side windows to display the waveform and vectorscope values for the current frame (although, unfortunately, these values don't change dynamically as you play the video). And you can even split the window so you can compare your adjusted color with the clip's original color.

Expandability or Compatibility?

As the name suggests, Xpress DV edits the DV format. In fact, it edits *only* DV—don't expect a low-resolution option like Final Cut Pro's OfflineRT. You also can't expand Xpress DV's capabilities to work with uncompressed video: there's no com-

patible video capture card. While these limits, somewhat restrict Xpress DV, they also reduce the possibility of conflicting project settings—the source of many problems for Final Cut Pro video editors.

But for Xpress DV, Avid lauds compatibility above expandability. All Xpress DV projects can be seamlessly imported into higher-end Avid systems for finishing—there are no messy edit decision lists to worry about. For example, you can use Xpress DV to edit a documentary at home and then finish your uncompressed video master at a facility with a Symphony system.

Macworld's Buying Advice

Avid Xpress DV 3.5 will meet the expectations of video editors seeking a reliable, feature-rich DV editing solution. But if you want expandability or low-resolution offline capabilities, consider Final Cut Pro or Avid's higher-end offerings. □

RATING: ★★★★★

PROS: Great color-correction interface; versatile RT effects; stable; upwardly compatible project files.

CONS: No offline RT format; not expandable; no support for G3 processors; no JKL Trim mode.

PRICE: \$1,699; Power Pack, \$2,499

OS COMPATIBILITY: Mac OS X

COMPANY: Avid, 800/949-2843, www.avid.com

REASON 2.0

OS X-Compatible Music-Sampling and -Synthesis Software Looks, Feels, and Sounds Right

BY DAVID LEISHMAN

Sure, first impressions are important. But second impressions matter, too; they tell you whether your initial excitement will lead to a productive relationship. And so it is with the release of Propellerhead Software's Reason 2.0 (distributed by M-Audio), which provides a good opportunity for musicians—from studio professionals to enthusiasts—to become better acquainted with a great music-sampling and -synthesis program. This update introduces new instruments and sounds, as well as OS X compatibility, and it may be just what you need if you're ready to finally retire your hardware-based system.

A Pretty Face

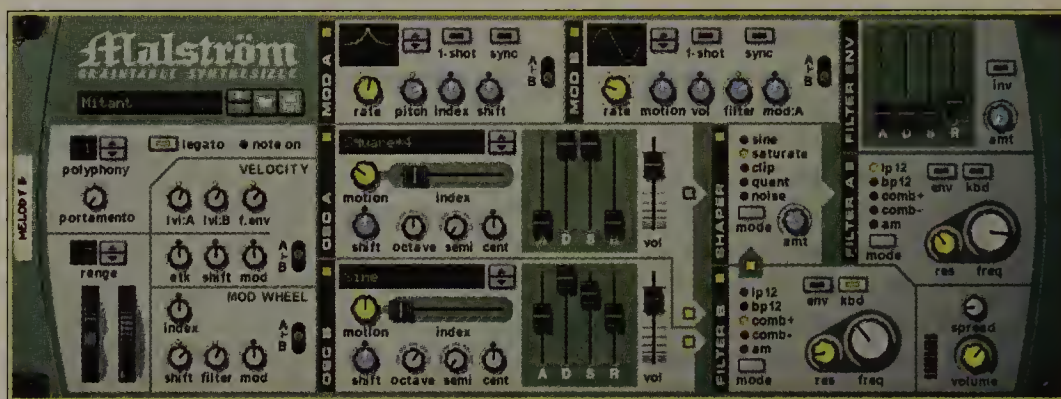
Version 1.0 (*Reviews*, May 2001), released in January 2001, has been the sweetheart of reviewers and audio professionals for both its interface and its sound quality, though the interface—which displays a simulated hardware rack for mounting devices that generate, sample, control, and modify sounds—is always mentioned first among its charms.

Reason presents virtual real-world tools in a way that's accessible to beginners and second nature to many experienced musicians. When you launch the application, it displays a rack full of equipment; you can remove any device simply by highlighting it and then deleting or cutting, and you can add devices via the Create menu.

Reason 2.0 offers sound-wave synthesizers, sampling and looping modules, time-based-effects devices, and drum machines; you can use any of these either individually within the application or, with music-sequencing applications such as Steinberg's Cubase

and MOTU's Digital Performer, as a group of sound modules.

The interface's main drawback—and we use this term very loosely—is that it offers more device choices than can be fully displayed at once. You can toggle between a full-size and a basic view of the devices. The latter view allows you to see the full controls for two or three modules, but you then have to scroll and toggle to use other devices.



Storm Control Reason 2.0's Malström Graitable Synthesizer is a powerful addition—with an accessible interface—that offers a number of versatile tools for manipulating its sounds.

There are a couple of possible workarounds, but neither one solves the problem completely, as both require the right hardware. You can use a mouse with a scroll wheel to move up and down the rack with lightning speed, or (new in version 2.0) you can detach the Sequencer window—for selecting and modifying tracks—and move it to a second monitor, in essence forming a second rack. Perhaps Propellerhead will let users add devices to the second—or even a third—rack in the next major release, as maximum visual working space is a must-have in digital-audio production.

Working Together

Reason 2.0's rich sonic tool chest includes devices found in version 1.0: a patchbay; a mixer; reverb and delay units; and sound units—the Subtractor analog synthesizer, ReDrum rhythm maker, and Dr. Rex loop player—that come with a full

complement of filters and modulators. Any device can have multiple instances and signal paths, and its functionality is limited only by your hardware and imagination. Changing signal paths is intuitive: just press the tab key to turn the rack around, and then select an output patch cord and drag its other end to an input channel on the desired device.

Version 2.0 adds two sound devices to the roster: the Malström Graitable Synthesizer and the NN-XT Advanced Sampler. Like the Subtractor, the Malström lets you generate and modify sound waveforms; however, it also gives you the ability

You could spend a *lot* more money to get richer samples, but these stand up admirably in a mix.

Compatibility

Reason 2.0 plays nicely with OS 9.0.4 and later, and OS X 10.1 and later. The OS 9 version requires OMS (Open Music System) 2.X but can't run with virtual memory turned on. We tested the program on a 450MHz Power Mac G4 running OS X 10.1.5, with the G4's built-in sound hardware. Everything functioned without a hitch, but Propellerhead notes that in OS X, you'll need a driver to use third-party audio hardware. (These products should have OS X 10.2 support by the time you read this; we conducted our tests just prior to Jaguar's release.)

The company adds that Reason 2.0 supports basic MIDI operations for all interfaces and devices that OS X supports; however, advanced features may require device drivers. Currently, Reason 2.0 can export AIFF and WAV files, and it works with ASIO- (Audio Stream Input/Output) and Sound Manager-compliant applications.

Macworld's Buying Advice

With its wealth of tools and sound samples, Reason 2.0 is a great application for its price. Reason's user-friendly interface lets beginners make music right away, and the program has plenty of capabilities to keep anyone's creative juices flowing. It just might become your best musical friend. □

RATING: ★★★★★

PROS: Familiar, fun interface; wide array of useful sound devices; support for 24-bit samples and SoundFonts; OS X support.

CONS: None significant.

PRICE: \$399; upgrade, \$99

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Propellerhead Software, 800/969-6434, www.m-audio.com

room to burn

Audio freaks check out Toast with Jam™



Get organized, and take your files with you wherever you go. Burn all your data, video, photography, MP3s, vinyl, cassettes and whatever else you've got to CD with Toast® 5 Titanium, from Roxio. The best selling CD burning software in the world for the Mac®. You can even create your own personalized jewel cases for each disc. Hit roxio.com to find out how.

Built for Mac OS X.

VINYL



DIGITAL VIDEO



DATA BACKUP



ORIGINAL MUSIC



DIGITAL PHOTO



MP3



roxio

© 2002 Roxio, Inc. All rights reserved. Roxio, the Roxio logo, Toast with Jam and the Burning CD logo are trademarks of Roxio, Inc., which may be registered in some jurisdictions. Toast is a registered trademark of Roxio, Inc. in the United States and may be registered in some other jurisdictions. Mac is a trademark of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks used are owned by their respective owners. Our software is designed to assist you in reproducing material in which you own the copyright or have the legal right to copy from the copyright owner.

Choose 140 at www.macworld.com/getinfo

NETMINDER ETHERNET 5.0

Network Analyzer Brings Clarity to Troubleshooting

BY JONATHAN A. OSKI

"The network is slow" is an end-user complaint that rings constantly in the ears of many network managers. But all too frequently, the user gives no specific description of *slow*—instead, the statement is simply a clue that something, somewhere, *might* be wrong.

When you face this kind of problem, a network-analyzer program, such as Neon Software's recently released NetMinder Ethernet 5.0, can quickly give you the insight you need. Now available as an OS X-native app, NetMinder Ethernet is an appealing and extremely useful tool that provides administrators with easily accessible and understandable information on the nuances of Ethernet packet transport.

Quickly Gain Intuition

Neon's focus on ease of use lets any network manager—not just wireheads—quickly monitor a network. When you launch NetMinder Ethernet, it opens four windows that allow you to control data collection and view Ethernet packets, analyze IP usage on an address and protocol basis, analyze bandwidth-usage trends, and discover problems with specific packets. Once you start collecting information, you can use the TCP/IP Analysis window to see which nodes and protocols are consuming the most bandwidth on your network.

A common question network managers get is "How much network bandwidth is consumed by Web browsing?" The TCP/IP Analysis window can quickly tell you what percentage of your network traffic is HTTP or HTTPS, the two primary IP protocols used in Web browsing. Likewise, you can use the Trend Analysis window to see how many packets are being transmitted and what percentage of the theoretical amount of bandwidth this represents. And NetMinder

Ethernet's Packet Inference window displays messages that can alert you to possible aberrant traffic on your network. The Packet Inference feature compares Ethernet traffic with a pre-defined set of rules and alerts you when noteworthy events occur, such as an attack by a network

If you're monitoring a very busy segment of your network, finding the packets you're looking for among the thousands that you'll collect in a few seconds could be very time-consuming. Using NetMinder Ethernet's filters, you can zero in on problematic traffic by specifying a source, destination, and protocol (including granular details specific to each protocol, such as flags or packet size). You can apply filters during the data-collection process or use them

work. For example, you may be trying to track down a rogue computer that's intermittently causing problems on your network. You tell the application to send you an alert—via pager, e-mail, or SNMP trap—when the event occurs. Just about any condition can trigger these alerts, which can incorporate filters and Packet Inference messages, giving you quite a bit of flexibility in your troubleshooting tactics.

Runs Almost Anywhere

NetMinder Ethernet requires either OS X 10.1 (or later) or OS 7.X (or later)—that is, it will run on just about any Mac that has an Ethernet interface. There are some limitations on pre-OpenTransport platforms, because packet collection will require dedicated use of the Ethernet interface.

Though not mentioned anywhere in the documentation, NetMinder Ethernet can also be used on 802.11 wireless networks. The application treats a wireless interface (for example, an AirPort card) as another Ethernet interface.

Macworld's Buying Advice

No network manager should be without a network analyzer. Other dedicated analyzers, such as Network Associates' Sniffer, don't run on a Mac and can cost \$10,000 or more, but thanks to lower-cost offerings such as NetMinder Ethernet 5.0, you don't need to spend a fortune to know more about your network. Whether you're troubleshooting a problem or performing a simple baseline study of your network traffic, NetMinder Ethernet's depth and ease of use make it ideal for any Mac network administrator. □

RATING: ★★★★★

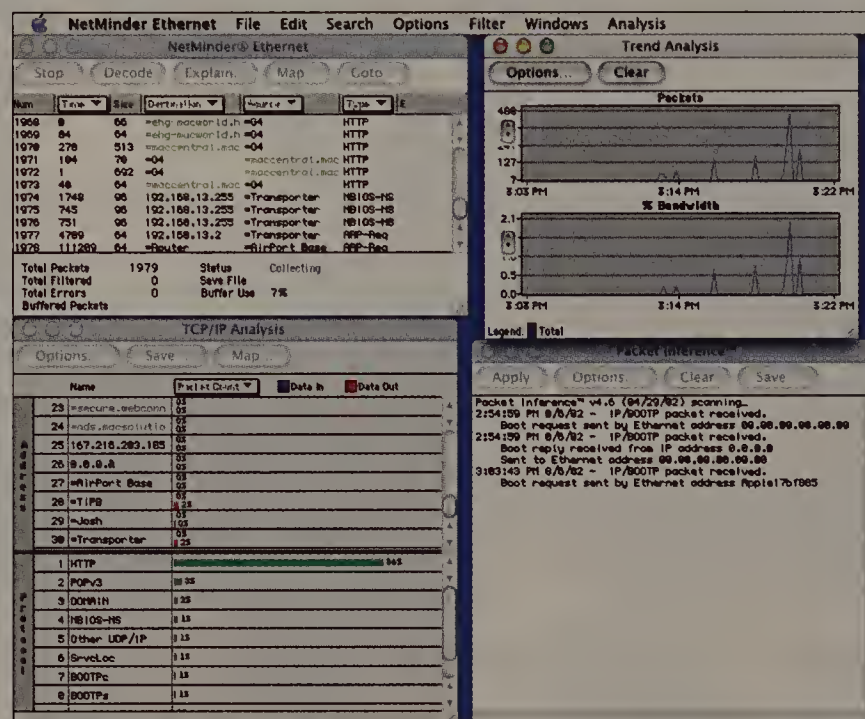
PROS: Easy to use; timesaving software; accurate.

CONS: Some IP protocols not recognized without customization.

PRICE: \$795

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Neon Software, 925/283-9771, www.neon.com



Knowledge Is Bliss The four windows that appear when you launch NetMinder Ethernet give you tremendous insight into the state of your network.

worm (Code Red, for example) or the appearance of a duplicate IP address on your network. These alerts can prompt you to disable switched ports or isolate susceptible servers until the attack or problem can be mitigated.

Digging Deeper

NetMinder Ethernet decodes a variety of packet types; double-clicking on any packet in the NetMinder Ethernet window displays the headers and data contained in the packet. (You can define additional Ethernet-based protocols for identification, but this manual process requires a detailed understanding of the packet header and other characteristics.) Reviewing network conversations on a packet level is often useful when you're trying to see whether a host or application is functioning properly.

on data you've already collected, to sift through raw data—including captures made with the command-line utility TCPdump.

Wake-up Call

Reports of problems on your network are often intermittent and anecdotal—and therefore difficult to fix. For example, a user may tell you that he always has trouble with an application late in the afternoon. Unless you're watching your network when the problem occurs, you'll have a hard time determining the possible causes. NetMinder Ethernet's ability to automatically begin data capture based on a time or a network event allows you to begin your triage without sitting in front of your workstation.

NetMinder Ethernet can also alert you when specified conditions or events occur on your net-

MATHEMATICA 4.2

Feature-Rich Math Program Integrates with the Web,
Adds Full Java Support

BY CHARLES SEITER

Wolfram Research's Mathematica program really has no competitors at this point, even though MathWorks' MATLAB is returning to the Mac this year, and Waterloo Maple's Maple is still available.

With Mathematica 4.1 (see our review at www.macworld.com/2001/02/05/reviews/mathematica.html), Wolfram added OS X compatibility and some significant mathematical functionality, but recognition of the Web and preliminary integration with Java were the most innovative aspects of that version. Now, along with the wealth of math-feature additions you'd expect in a Mathematica update, version 4.2 offers full XML support and Java capabilities, with its own Java run-time engine.

Even More Math

New mathematical capabilities in version 4.2 include analysis of variance (ANOVA), making statistics in Mathematica nearly as feature-rich as a dedicated statistics software package such as SAS Institute's StatView. Combinatorica, a package bundled with Mathematica 4.2, provides the most complete library of symbolic elements and functions for finite mathematics that there is—and it has 230 functions more than the older, discrete Combinatorica package. These functions are indispensable for graph theory, commonly used to generate solutions to network structural problems.

The other important math-function improvements are upgrades for linear programming, and global optimization of multidimensional functions, making Mathematica 4.2 a more useful program for those engaged in business and the social sciences.

Nminimize, the new optimization command in version 4.2's Numerical Math package, for

example, provides you with four different methods for global optimization—genetic programming, nonlinear simplex algorithm, simulated annealing, and random search—so you can now compare your results to ensure exact minimization. As a testament to Mathematica 4.2's value, the same methods for global optimization are also available individually in other programs on the market, but they will cost you thousands of dollars each.

Stronger Ties to the Web

Wolfram incorporated its experiments with MathML—the math-representation standard based on XML—into version 4.1, and these experiments have evolved into complete integration of MathML with XML in version 4.2. You can convert individual Mathematica expressions to XML with the simple command ExpressionML. Similarly, the program allows you to convert whole Mathematica notebooks to XML documents by using the NotebookML action.

You're also able to change Mathematica XML expressions back and forth to Java DOMs (Document Object Model). Java DOMs let you use standard Java classes to modify your document, making it easy to automatically sort data, graph it, and use Java to generate reports.

Importing information from XML source files to Mathematica XML format is as simple as exporting information from Mathematica to the Web. This means that analysts will soon be processing the financial data piling up on the Web as .xml data files with Mathematica's computational packages for time-series processing and options trading. Wolfram Research's offerings are among the most popular with math-oriented traders.

But although the XML and Java language functions provide



Come Fly with Me Mathematica's own Java run-time engine interprets a Java program that draws flight paths on a map, and it displays the combination of routes inside a notebook.

more flexibility, they're not as efficient as MathML itself—if you're porting a Mathematica notebook with graphics to an XML document, for example, you'll have ample time to go get yourself a cup of coffee before the process is complete.

In version 4.1, Wolfram introduced J/Link, which allows you to evaluate Mathematica statements in another program (in this case, a Java program). Version 2.01 of the J/Link tool kit in Mathematica 4.2 also lets you call Java programs directly from within a Mathematica notebook (see "Come Fly with Me").

In effect, you can use Mathematica as a scripting shell to build and test Java classes. Financial-service companies have already started using version 4.2 to build Web sites that use Mathematica for back-end computation and have a colorful Java-built graphic front end.

Print for Professionals

Despite its online integration, Wolfram has not neglected good old-fashioned print, which is still the format of record for most academic activities. Mathematica notebooks have long supported a fairly rich set of word-processing features. But a new package in 4.2 offers palettes for automatic indexing, producing a table of contents, controlling

pagination and print details (header and footer size and placement, among others), creating side-by-side text and graphics, and integrating material with the Mathematica Help browser. The authoring tools alone are worth the price of the upgrade for users intending to produce books, long articles, or course materials.

Macworld's Buying Advice

Compared with MATLAB and Maple, Mathematica 4.2 is in a league of its own. It has the largest scope of math functionality, the most complete set of features for print and Web publishing, and exemplary compatibility with OS X. If you're looking for the highest level of functionality, industrial and academic acceptance, and Mac support, Mathematica 4.2 is what you want. □

RATING: ★★★★★

PROS: New math functions for business and pure math; full XML support; full Java implementation.

CONS: New XML and Java functions are a bit slow.

PRICE: \$1,880; upgrade prices available for owners of previous versions

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Wolfram Research, 800/441-6284, www.wolfram.com

SPAMFIRE 1.2

Accurate E-mail-Filtering Program Puts the Choices in Your Hands

BY GEOFF DUNCAN

No one disagrees that spam is the scourge of the Internet, but what can the innocent spam victim do? One option is to use your e-mail program's rules or filters to identify spam, but spending endless hours refining them is no fun. And if your ISP combs through your e-mail for you, it might block items you *want*. Matterform Media's Spamfire 1.2 puts both general spam-fighting filters and highly configurable individual settings into the hands of the person who best knows your e-mail—*you*. Spamfire works with any e-mail program, but to do its job, Spamfire must download the spam to examine it, and the program may not be flexible enough for some power users.

The \$29 Pro version of Spamfire supports multiple accounts and includes 12 months of filter updates via the Internet. The \$19 Lite version supports a single account and doesn't include online filter updates.

Spamfire works by checking your e-mail before your e-mail program does; it logs in to your POP mailbox and screens any waiting messages. (Spamfire 1.2 does not support IMAP accounts, AOL, Hotmail, or Web-based e-mail services, but support for IMAP should be available in the near future.) If a message looks like spam, Spamfire downloads it so you can review it later and then deletes it from your server. When Spamfire finishes, it activates your e-mail program and delivers your "good" messages to your in-box.

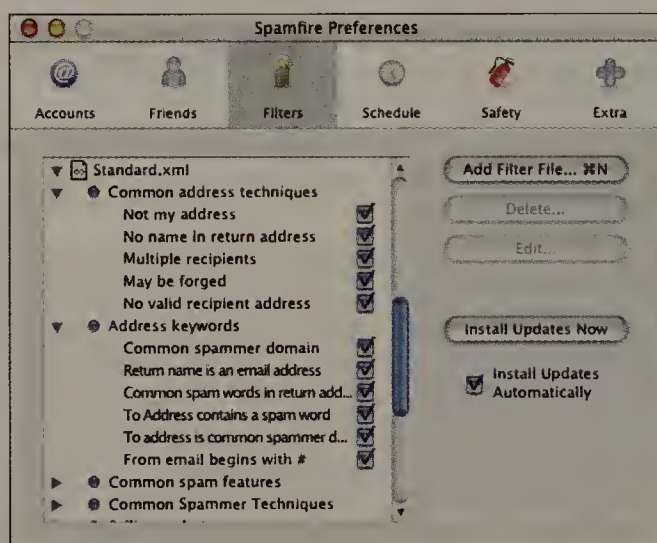
Spamfire applies its entire rule set to each message, and each match adds points to what Spamfire calls the message's "spam score." You set Spamfire's threshold between 0 and 100 points for each account: a low threshold means more mail is blocked; a high threshold means more mail gets through. You can enable or disable any of Spamfire's filters and create your own. Spamfire also has a Friends List that can be imported from your e-mail program's address book, and it always accepts messages from addresses on that list.

In our tests, Spamfire did a good job, typically identifying correctly more than 80 percent of the spam it encountered. Messages identified as spam are added to Spamfire's Spam List. If you see a message Spamfire shouldn't have blocked, you can rescue the message so that it's sent back to your e-mail program. Unfortunately, though, Spamfire

does not indicate which messages you've already rescued; this can be confusing.

Spamfire's effectiveness varies with the nature of the e-mail you receive, along with the number of accounts and addresses you manage. Spamfire will often block messages from mailing lists, but many lists can't be placed on the Friends List because messages come from hundreds of people. Instead, you must create filters that give *negative* spam scores to mailing lists, offsetting points added by the other filters.

Another problem is that after Spamfire's initial screening, new messages may appear in your e-mail program as already read. (To counter this, you may be able to tell your e-mail program to mark all incoming mail



Highly Personal You can select or deselect any of Spamfire's message filters in the Preferences window, and you can create filters of your own for mailing lists and other legitimate e-mail.

as unread.) Finally, Spamfire checks all accounts on one schedule, which may be a problem if you need to check some accounts more or less often.

Macworld's Buying Advice

Spamfire is an easy-to-use way to add sophisticated, configurable, rule-based filtering to your e-mail. It can't spare you the bandwidth of downloading spam in the first place, and users with several accounts on different schedules may chafe at some of its limitations, but if you have a handful of accounts, Spamfire is a very good program at a bargain price. □

RATING: ★★½

PROS: Straightforward; flexible and user-configurable; Pro version supports multiple accounts.

CONS: Doesn't handle IMAP, AOL, Hotmail, or Web-based e-mail services; scheduling limitations; does not indicate whether a filtered message has been rescued.

PRICE: Spamfire Pro, \$29; Spamfire Lite, \$19

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Matterform Media, 505/747-1220, www.matterform.com

Finally...

a simple and affordable product that makes sense.

HEXA Media Drive The 6-IN-1 Digital Media Reader/Writer



The 6-in-1 HEXA Media Drive supports six popular media types and lets you easily transfer photos, music and data between your computer, PDA, digital camera, MP3 player and more.

- Supports 6 popular media types
- USB Powered - no AC adapter needed
- Plug & Play - no rebooting needed
- Compact & light-weight design
- Drag & drop file transfer
- Reduces battery usage
- Supports MAC & PC

For more information about these products and others, please visit our web site:

www.yedata.com

Y-E DATA®
Simple and affordable products that make sense.



Copyright © 2002 Y-E Data. All rights reserved. All other company and product names are trademarks of their respective trademark holders.

Choose 22 at www.macworld.com/getinfo

CARRARA STUDIO 2

3-D-Animation Software Offers Realistic Rendering and Animation, without Breaking the Bank

BY BEN LONG

It's true that Eovia's Carrara Studio 2 lacks the advanced modeling tools and scriptable animation that high-end 3-D-animation systems such as Alias|Wavefront's Maya, NewTek's LightWave 3D, and Electric Image's Universe have. Nor does it provide a similar maniacal level of control over every detail. But the latest version of Carrara does offer beginning animators—and even professional designers—engaged in Web, print, and video graphics a reasonably rich feature set and ease of use, at a low price: \$399.

The Sum of Its Parts

Carrara's interface and features clearly show its MetaCreations Ray Dream Studio and Infini-D ancestry. Unlike a software tool that was built from the ground up, or that evolved naturally in response to user requests, Carrara is something of a Frankenstein monster: the parts work, but they don't go together as well as they could.

Carrara's interface monopolizes the Mac's screen, largely with empty space, and disables the Dock. Although this gives you an uncluttered screen to work on, we would much prefer access to our desktop, along with floating windows that put all of our tools in reach.

While Carrara is easy to use overall, its interface eschews some important usability conventions, such as transformation widgets that let you know which axis you're moving or scaling an object on, and snaps for precisely editing and aligning components. Each time you use a tool, you'll have to reset its options because Carrara reverts to default values after every operation. One new interface aspect we *do* like, however, is that control-clicking anywhere on the screen instantly brings up a palette of navigation tools.

Building Blocks

When it's time to actually build something, Carrara offers several types of modeling, each in a distinct module. The Spline Modeler is the default environment for creating 3-D objects. This tool lets you make a variety of swept or extruded shapes, using Bézier splines as both cross sections and extrusion paths. Although its interface is fairly easy to grasp with some practice, the modeler's powers are limited to creating simple, single-surface extrusions and tubes.

Eovia bills Carrara's Vertex Modeler as the "advanced" modeler, but in our experience it's really the easiest to use for most types of 3-D work. This module lets you work with individual vertices, edges, and faces on any surface. And it lets you sculpt any shape—if you have enough patience. Hidden inside the Properties window of the Vertex Modeler is our favorite new feature in Carrara: the Smooth tool, a simple but effective subdivision surfacer. It lets you create detailed organic surfaces—such as faces, hands, and animals—by smoothing relatively simple polygon cages.

Other types of modeling include Text, for creating 3-D type; Terrain, for creating landscapes and backdrops; and Metaballs, blob-like shapes that blend like mercurial clay, useful for quickly creating lumpy objects such as wax drips on the edges of a candle.

Photon Torpedo

Carrara's surfacing (or texture-mapping) features pack lots of power but take considerable time to learn. You can create any kind of realistic or fictional surface by combining and layering complex combinations of color and material properties. This ability is complemented by Carrara's very good rendering quality. Another new feature in Carrara is Photon



Name That Toon Subdivision surfaces let you easily create realistic—or not-so-realistic—organic shapes, such as this three-fingered rodent glove.

Mapping, which is a type of radiosity rendering. The results of this rendering algorithm are both wonderfully rich and agonizingly slow to render. The program also now includes an option for rendering *caustics*—the patterns created by light refracting through transparent surfaces.

Designers will also welcome Carrara's lighting options, which include standard lights—such as point, spot, and directional—and unusual options such as Moon, which creates moonlight effects in conjunction with the atmosphere, and Anything Glows lights, which turn object geometry into light sources.

3-D with Character

Carrara's animation is impressive for an application in its price range. You can animate objects and hierarchies with a good level of control, and you can access motion curves that let you fine-tune the timing of movements.

The program even offers an excellent introduction to character animation. Carrara Studio 2 introduces inverse kinematics and bones, which let you animate lifelike characters by attaching them to an underlying skeleton with realistic joints. On the performance front, the software is reasonably responsive, if not snappy, on a dual-450MHz Power Mac G4.

Carrara renders high-quality still images and image sequences in most of the standard file for-

mats, and the program can render QuickTime movies at any resolution. We really like the batch renderer that lets us queue up a bunch of renderings and then go to lunch. Eovia has announced a plug-in, VectorStyle, that will render Flash files; while it was released too late for evaluation in this review, it should be available by the time you read this.

Macworld's Buying Advice

While the program is a sometimes inelegant amalgam of Ray Dream Studio and Infini-D, Carrara Studio 2 is a good, low-cost, easy-to-use 3-D solution for creating a wide variety of graphics and fairly modest animations. Although its interface needs improvement, newcomers to the 3-D arena will find it a capable tool for creating all kinds of realistic 3-D artwork, and it offers enough special effects and animation capabilities to keep the creative juices flowing. □

RATING: ★★★½

PROS: Cool 3-D features; easy to learn and use; very good rendering quality.

CONS: Tedious interface; limited control for modeling and fine-tuning effects.

PRICE: \$399

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Eovia, 858/457-5359, www.eovia.com

REVIEWS

SLICK TRANSITIONS AND EFFECTS VOLUMES 3 AND 4

Two New Plug-in Collections for Apple's iMovie 2 Offer Pro Effects at a Consumer Price

BY JEFF CARLSON

As the pioneer in the small but lively realm of iMovie 2 plug-ins, GeeThree offered transitions and effects that were equal parts useful and whimsical. To further differentiate its lineup from products by competitors Virtix and eZedia (*Reviews*, October 2002), GeeThree has focused on delivering more-practical tools in its latest pair of plug-in sets, Slick Transitions and Effects Volumes 3 and 4. Now you can create shots with split-screen or blue-screen effects, for example, without jumping into the much higher price brackets of pro video programs such as Apple's Final Cut Pro and Adobe Premiere.

Slick Volume 3

Thirty new title effects are the banner news in Volume 3. Some

effects make up for deficiencies in iMovie's built-in set; for example, the Headline title effect can produce larger type than Apple's similar Center effect. Even the more fanciful effects—such as Vellum, which curls like a transparent sheet of plastic across the screen, and Riptide, which makes words seem to rise from a pool of water—are subtle, not garish.

This trend also applies to Volume 3's transitions: Flap and Flop, for example, improve upon clichéd "page-curl" transitions by adding a slight flutter to some of the variations, and Ripple creates a realistic water effect. But don't think that GeeThree stuck to the high road—there's also an enjoyable and trippy transition called Psychadelia-Tie Dye.

Standouts in Volume 3's effects are color modifiers Color Tint and RGB Adjust, as well as Rotate/Scale, which can help realign horizons slanted by slightly crooked camera work. (One downside: rotating exposes the frame's black borders. They typically don't appear during TV playback, but it would be nice to have the option of zooming in enough to hide them.)

SLICK TRANSITIONS AND EFFECTS VOLUME 3

RATING: ★★★★★

PROS: New titles; high-quality rendering; useful transitions and effects.

CONS: Rotate/Scale effect exposes frame's black borders.

PRICE: \$50 each; both volumes, \$90 OS COMPATIBILITY: Mac OS 9, Mac OS X
COMPANY: GeeThree, 650/328-2359, www.geethree.com

Slick Volume 4

GeeThree calls Volume 4 the Hollywood Edition because it offers features typically found in professional-level applications. The Split Screen tool allows you to place two DV-formatted video clips side by side in a frame, and the Picture-In-Picture effect lets you create your own newscastlike scene—you can place a box con-

> continues on page 50

SLICK TRANSITIONS AND EFFECTS VOLUME 4

RATING: ★★★★★

PROS: Offers professional-level effects not otherwise available in iMovie.

CONS: VidMix effect doesn't cleanly knock out some colors.

DiskWarrior has than



1999 Macworld Editors' Choice Awards
Winner, Utility Software. "DiskWarrior is an excellent ax to add to your disk-repair and -maintenance arsenal. DiskWarrior's ease of use, speed, and new method of fixing disk problems make it a powerful disk-maintenance product."



1999 MacUser Awards
Best Utility/Enabling Software. "For providing a new, easier to use, safer, and often more successful alternative to more bloated recovery applications, the judges felt DiskWarrior deserved top billing..."



1999 Apple Design Awards
Most Innovative Product, Runner-up Best New Product



mactoday
★★★★★
5 Out Of 5 Stars
"Every Mac on the planet can benefit from DiskWarrior!"

Repairs disk problems such as disks that won't mount, files you
Now with DiskShield™ to prevent damage to your disks before

NORTON ANTIVIRUS 8.0

Stalwart Virus-Protection Suite Comes to Mac OS X

BY STEPHAN SOMOGYI

Computer viruses are, unfortunately, a fact of life these days. And although we Mac users don't experience the onslaught of malware that folks in the Windows camp have to fight off, we're not invulnerable, and we mustn't become complacent. An antivirus program is a must.

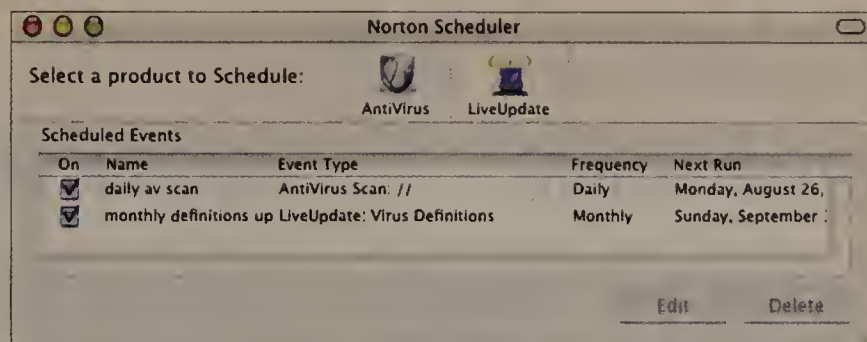
Symantec's Norton AntiVirus for Macintosh 8.0.2 is the first OS X-native release of this well-regarded protection tool, and in addition to OS X 10.1 support, this version offers improved scanning capabilities.

Norton AntiVirus provides multiple ways to track down viruses. It includes a scanner application and an invisible background process called AutoProtect, which looks out for viruses, alerts you when it finds

them, and stops them before they can propagate further.

AutoProtect is the first line of defense, but because it operates in the background and relies on a kernel extension (which is akin to a system extension in OS 9 and earlier systems), some users may prefer not to use it. If you fall into this group, you can also root out viruses with either the scanner application or the included navx command-line tool—useful for building Unix shell scripts, for example.

Version 8.0's most useful scanning feature is QuickScan, which remembers previously scanned files and will rescan them only if you've made changes to the file or if you've updated the virus definitions. Rescanning an already-scanned disk now takes only a fraction



Regularly Scheduled Checkups Norton AntiVirus 8.0.2's Scheduler allows you to plan updates and scans on a recurring basis.

of the time a first scan does. And unlike its predecessors, Norton AntiVirus 8.0's QuickScan also remembers already-scanned archives.

After installing AntiVirus 8.0, you should first ensure that the program's virus definitions are up-to-date. To this end, the program includes an OS X version of LiveUpdate, an application that queries Symantec and downloads new virus definitions—and software updates—as needed.

AntiVirus 8.0 also includes Scheduler, which lets you schedule regular antivirus scans to make sure no viruses have somehow sneaked onto your system. The software can alert

you when your virus definitions are more than a month old and then download updated ones for you.

One area where AntiVirus falls short is in the comprehensiveness of its virus definitions:

> continues on page 51

RATING: ★★★★★

PROS: QuickScan remembers already-scanned archives; command-line scanner included for automated scripting.

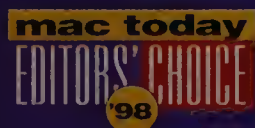
CONS: Scans only for Mac-affecting viruses, not for PC viruses; online help on OS X refers to OS 9 features.

PRICE: \$70; upgrade, \$40

OS COMPATIBILITY: Mac OS X

COMPANY: Symantec, 408/517-8000, www.symantec.com

Won more top awards any disk utility ever.



Mac Today
1998 Editors'
Choice
Awards

Outstanding Disk Rescue Product.
"DiskWarrior belongs in the arsenal
of every Mac owner!"



★★★★★

MacHome - Five Apples,
MACnificent Award
"DiskWarrior is a deceiv-
ingly simple yet incredibly
powerful disk repair utility,
which is able to fix your
disk problems with zero effort."



"DiskWarrior comes
to the rescue..."



MacHome 8th Annual
Home Choice Awards
Best Utility. "Got lots of votes for
repairing and preventing damage
to hard disks so well. DiskWarrior 2.0
is a quick solution to faster, more stable hard drives."

an't trash, and folders that have disappeared.
occurs. Visit www.Alsoft.com for details.

WWW.ALSOFT.COM

ALSOFT

1-800-257-6381

© 2000 Alsoft, Inc.
Alsoft, DiskWarrior,
DiskShield are trade-
marks of Alsoft, Inc.

iPOD 20GB

Huge-Capacity Music Player Adds Cool Extras, Design Improvements

BY SIMON JARY

The pocket-size iPod is at the top of the digital-music-player market, and with Apple's addition of a 20GB model, its lead is widening.

Apple claims, fairly, that the 20GB iPod can hold approximately 4,000 songs compressed at 160 Kbps. And aside from music, you can use your iPod as a portable external hard drive, to view your contacts list, and to download your calendar for iPod viewing.

Both the updated 10GB iPod and the new 20GB iPod have a new touch-sensitive, static scroll wheel that's less vulnerable to dust, dirt, and breakage, because it has no moving parts. The 10GB and 20GB models' FireWire ports are also protected by a new built-in cover, which feels a little flimsy but does its job.

The 20GB iPod is about three-quarters of an inch thick and weighs 7.2 ounces, about one ounce heavier than its 5GB and 10GB siblings. To help you tote them around, the 10GB and 20GB models come with a carrying case and belt clip. Also included is a tiny wired controller you can clip onto your clothing; it lets you play, pause, fast-forward, or rewind a track, as well as adjust volume, without having to reach for the iPod itself.

All the new iPods come with improved headphones—even at medium MP3 compression, it's difficult to tell the difference between the iPod's audio and that of a standard portable CD player.

The iPod 1.2 software included with these models did occasionally get confused about the level of charge in the battery. Apple says that it is investigating the problem.

Macworld's Buying Advice

The 20GB model costs only \$100 more than the 5GB iPod did when it was first announced, so it's a bargain by comparison, especially given the cool extras that come with it. □

RATING: ★★★★★

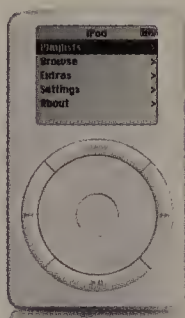
PROS: Smart, compact design; fast sync speed; smooth solid-state scroll wheel; convenient wired remote control; tons of storage.

CONS: Slightly thicker than the 10GB model.

PRICE: \$499

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Apple Computer, 800/692-7753, www.apple.com



WORKSTRIP X

Dock-Replacement Utility Tries to Help You Get Organized

BY JEFFERY BATTERSBY

Designed to replace the Dock in Mac OS X, Softchaos's WorkStrip X attempts to bring order to the desktops of harried Mac users. Like the Dock, WorkStrip lets you launch applications with one click on an icon. And it lets you organize your files into Workspaces, which are great if you need to keep track of many projects. The program also remembers recently visited Web sites and recently created or edited documents.

Control-clicking on any program icon in WorkStrip opens a contextual menu that gives you access to files generated with that app. For example, the contextual menu for Microsoft Word lets you instantly preview your Word files.

You add items, such as folders, to WorkStrip either by choosing Keep In Strip from the pop-up menu of an active application or by dragging any item from the Finder to WorkStrip. Once you drop a folder on WorkStrip, you can easily navigate through its subfolders and select documents. Control-clicking on the folder displays a hierarchical menu that groups contents alphabetically by type and creator. (Oddly, you also remove items by selecting Keep In Strip, and you can't drag them off of the strip as you can with the Dock.) Clearly, WorkStrip provides you with numerous ways to systematize your work. But we would prefer a more streamlined, practical approach with more focused features. You *must* read the manual to use WorkStrip effectively, and even then, how to best use the program is not always apparent.

Macworld's Buying Advice

WorkStrip X promises simplicity and efficiency—but before it can deliver, you'll need to spend a significant amount of time setting it up and experimenting with its features. □

RATING: ★★★

PROS: One-click access to programs, files, and URLs; speedy, versatile preview feature.

CONS: Getting started is time-consuming; overwhelming feature set.

PRICE: \$39

OS COMPATIBILITY: Mac OS X

COMPANY: Softchaos, [44] (0)20 7434 0775, www.softchaos.com



> Slick Transitions and Effects

continued from page 48

taining other footage anywhere on the screen. With the Matte-tastic effect, you can anchor your logo (or any other image) to video, but because this effect lacks controls for placing your image, you must create a Photoshop-format file to fit the dimensions of the screen and position your image against a transparent background.

More ambitious is VidMix, GeeThree's method of achieving blue-screen effects. Using VidMix requires a peek at the PDF-based documentation so you can understand how each component works, but it's otherwise easy to learn. Like eZedia's similar eZeScreen plug-in, VidMix delivers mixed results, depending on your blue-screen source material (we used a sheet of colored poster board). Footage rendered in a 3-D or vector-imaging program tended to work better, due to those programs' solid-color backgrounds; real-life footage, although shot against a solid background, had shadows and variations that we were unable to remove completely.

Much better implemented is SlickMotion, a separate application for panning and zooming still images. As a stand-alone program, it offers an easily navigable interface for controlling the degree of zoom and the camera's position—as opposed to Virtix's plug-ins, which restrict you to operating from within iMovie's tiny preview pane. SlickMotion alone is almost worth the price of the entire Volume 4 package.

Macworld's Buying Advice

With the exception of the so-close-but-not-quite-there VidMix, Slick Transitions and Effects Volumes 3 and 4 offer iMovie 2 users at all levels a great combination of professional-looking effects that won't bust a production budget. Moreover, cost-conscious filmmakers will appreciate that Volume 4 alone includes most of the capabilities found in eZedia's and Virtix's offerings. □



Double Duty Slick Volume 3 offers new title effects for iMovie 2; Volume 4's picture-in-picture features are comparable to those in professional-level apps.

> Six Degrees

continued from page 37

ground while you work, and the entry in the Focus field reflects your every click. So if you return to the Legend after a time, you're likely to find new information there. This makes it hard to keep track of previous Six Degrees results. (Moreover, if you want to revert to a previous set of search results, expect to wait while Six Degrees runs the search again.)

However, there are two ways Six Degrees lets you solve this problem: First, you can click on the eyeball button in the interface to stop Six Degrees from building relationships—this closes the eye, indicating that the program is no longer keeping track of your movements. Second, you can create a Six Degrees “project,” a special Six Degrees-formatted file that saves your results so you can come back to them later.

Now, the Catch(es)

We'll just come right out and say it: Six Degrees is *slow*, which is problematic for a utility that purports to save you time. The program took too long to find results and slowed down our test machine, a 450MHz Power Mac G4 with 512MB RAM. (Don't even think of using it on a G3.) We spent a lot of time staring at the blue progress bar at the bottom of the results window, unable to quickly switch back into Entourage, Word, or any other program while Six Degrees worked. Even after we'd quit Six Degrees, or when it wasn't tracking our movements, Entourage was incredibly unresponsive. (Creo says that it's working to improve Six Degrees' performance and planning to release updates that should fix many of these problems in the near future.)

We had no trouble using Six Degrees with Office X documents, whose names readily appeared in the Focus field when we opened them. And the well-organized user guide states that Six Degrees works with Classic apps such as QuarkXPress 4.11 or 5.0 and Adobe Photoshop, but when we opened files of those application types, their file names often didn't appear in the Focus field. When we clicked on the files in the Finder, however, Six Degrees recognized them—an inconvenience Creo acknowledges in the included user guide.

Macworld's Buying Advice

Unless you're perfectly organized all the time (and who is?), you can probably make good use of Six Degrees. It makes connections more as a human being does and less as a machine does. Six Degrees is worth its \$99 price if your programs are compatible and if you're willing to sacrifice speed for its otherwise powerful file-finding and organizing capabilities. □

> QuickTime 6 Pro

continued from page 37

company's IT staff is unlikely to agree to uncork them at work.

A Change of Face

Apple has dispensed with QuickTime TV channels within QuickTime Player (the QTV menu is missing from QuickTime Player 6) and moved channels such as CNN, HBO, Disney, and the Weather Channel to Apple's Web site. In place of channels, you'll find buttons that link to additional Web content in the right side of the QuickTime Player window (see “A Word from Our Sponsors”). Besides being less useful than the channel links of old, the new links bear the distinctive scent of advertising.

Macworld's Buying Advice

Although QuickTime Player's interface is somewhat commercial in nature, the benefits of the AAC codec, MPEG-4 video, and Instant-On streaming (for those able to take advantage of it) make this one of the most compelling QuickTime upgrades in years for those with more than a passing interest in multimedia—and one well worth the paltry price of admission. □

> Norton AntiVirus 8.0

continued from page 49

it detects only viruses that can infect Macs, including macro viruses that affect Microsoft Office apps. Even though Macs are immune to PC viruses, they *are* sometimes unwitting carriers. Since Macs and PCs often coexist closely, it would be useful if the package detected PC viruses, especially those that are transmitted via e-mail. Likewise, this lack of detection is especially problematic for Mac-based users of Connectix's Virtual PC, who, for performance reasons, might not want to run a PC-based antivirus app.

In addition, version 8.0 has disappointingly OS 9-centric documentation. While the installation CD includes Norton AntiVirus 7.0 for OS 8 and 9, we found OS X content treated as the exception rather than the rule. This was particularly apparent in the online help.

Macworld's Buying Advice

With the exception of PC virus detection, Norton AntiVirus for Macintosh 8.0.2 provides the tools necessary to keep your Mac free of viruses. The responsibility for updating your virus definitions, however, remains with you. □

Get everything
you're looking for!

get info
Macworld's Reader Service

“Get Info” with options! Now you can get information on all the products and services you see in Macworld. And get it faster. Simpler. Easier. All you need to do is visit one Web site:

www.macworld.com/getinfo

Then select the products, the categories or advertisers for whom you want to receive information. That's it. You can have the information delivered to you by e-mail, regular mail or even telephone. Or you can click on a link that will take you to the company's Web site in one easy step.

We want to make sure that you get all the information you need to make the best buying decisions—and so do our advertisers. So take advantage of the opportunity to see all the details, and get info now!

Macworld
The Mac Product Experts

Shop Formac!

Visit our website for the easiest and most convenient way to buy the best products for your Mac. Or call us at 1-877-4Formac (that's 1-877-436-7622).

Formac

www.formac.com



20.1" LCD with MVA Premium technology!

gallery 2010 **Hot Pick, Seybold 2002**

- Get the big picture: 20.1" active matrix TFT features high-definition UXGA resolution of 1,600 by 1,200. Virtual workspace corresponds to a 23" CRT!
- Color-accurate: MVA Premium TFT combined with Formac's 24-bit digital graphics technology delivers color purity of EBU 85%, and guarantees ultra-wide viewing angle (170°) without color distortion.
- Superior picture quality: Gallery 2010 sets new industry records for contrast ratio (500:1) and brightness (250cd/m²). Enjoy sharp and brilliant images from edge to edge.
- Full-motion digital video playback: Industry-leading pixel response (10-25ms) predestines Formac gallery for professional video work.
- Formac Display Connector (FDC): Connect Formac gallery 2010 via ADC or DVI. One single cable carries digital graphics, power and USB signals.
- Form + Function: Slim desktop footprint and unique hinge design to adjust viewing angle.
- Formac quality: 3 year warranty



Only
\$1,699

FGD 2010-1

Color-accurate 17.4" flat panel display

gallery 1740

- 17.4" MVA display guarantees ultra-wide viewing angle with accurate colors.
- Superior picture quality: higher brightness (220cd/m²) and contrast (400:1).
- SXGA resolution: 1,280 by 1,024 pixels
- Industry-leading pixel response (10-25ms)
- Digital interface (ADC or DVI)
- 3 year warranty



From
\$899

FGD 1740-1

Burn DVDs and CD-RWs with your Mac!

devideon superdrive

- Formac devideon authoring software for OS9 and OSX
- Record DVDs and CD-RWs with your G3, G4 or iMac
- Share your movie productions with family and friends on virtually any DVD Player!
- Record up to 6 hours of video on one DVD media
- Quiet: Hermetically sealed enclosure virtually eliminates noise of drive
- Compatible with iTunes and DiscBurner
- Ultra-fast FireWire technology



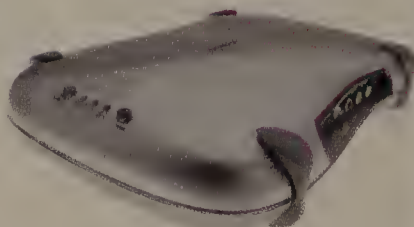
Only
\$499

FDD 1194-1

Turn your Mac into a TV with digital VCR!

studio dv/tv

- Built-in Stereo TV Tuner (NTSC): Watch TV in a scalable window or full-screen on your desktop!
- Schedule and record TV shows at any time and date. Remote scheduling via network or internet.
- Record video full-screen at 30 frames per second, with digital audio quality (48kHz @ 16 bit)
- Be creative: Edit your recordings in native DV!
- Input/Output: Composite (RCA), S-Video, Stereo Audio
- FireWire: hot-swappable and bus-powered*



Only
\$399

FS 1042-0

Producers wanted!

studio dv

- Hardware CODEC: Capture video full-screen at 30 frames per second, with digital audio quality (48kHz @ 16 bit)
- Native DV: edit your movies frame-accurately and with no loss of quality.
- Input and output for Composite Video (RCA), S-Video, Stereo Audio and two FireWire ports!
- FireWire: hot-swappable and bus-powered*



Only
\$289

FS 1041-0

© 2002 Formac Electronics, Inc. All rights reserved. Formac, Formac gallery, Formac devideon, Formac studio, and Formac studio dv are registered trademarks of Formac Electronics, Inc. and its subsidiaries in the US and in other countries where Formac products are sold or distributed. Other brand names and trademarks are the property of their respective owners.

Also available at MacConnection, the Apple Store, ClubMac, MacMall, J&R, B&H or at other Formac Certified Resellers (Please visit our website for a detailed list and locations). Call us for Education prices.

WEATHERPOP ADVANCE 1.5

X

Glucose Development, www.glu.com; \$8

Some people ignore the weather, and others invest in remote-sensor thermometers, humidity and pressure sensors, and similar tools. WeatherPop, a tiny program that puts weather information in your Mac OS X menu bar, is definitely for the latter group.

A suitable companion to OS X's menu-bar clock, WeatherPop connects to the Internet to retrieve the latest weather data. Then it displays the current weather conditions at all times. When you click on WeatherPop, you can see an extended forecast for your city and other information. However, the data sources can be unreliable; WeatherPop recently stopped working for a week until its developers could release a new version. (Glucose says that it's updating WeatherPop to be more resilient to changes in how the software collects weather data.) Still, for anyone in a climate-controlled office who wants to see how things are shaping up outside, WeatherPop is simply addictive.—JASON SNELL

KENSINGTON STUDIOMOUSE

9X

Kensington, 650/572-2700, www.kensington.com; \$60

With its silver, white, and clear Lucite design, the Kensington StudioMouse looks right at home next to a new Power Mac G4 tower. The mouse's gracile but solid feel and well-designed MouseWorks software accommodate the fine control graphics pros crave.

The StudioMouse has three customizable buttons and, its new main attraction, a solid-state scroll sensor. Though the scroll sensor works smoothly (and it's recessed so you don't activate it inadvertently), it requires a bit more pressure than we'd expect. Pressing and holding the top or bottom of the scroll sensor lets you scroll continuously.

The StudioMouse's low profile does wonders to keep your palm and wrist in better alignment than mice with tall or bulbous palmrests can. But its white sides and scroll sensor show the accumulated gunk of everyday use a little too well for our taste.

The StudioMouse's simple, three-buttons-and-a-scroll-sensor configuration is suitable for anyone who wants to make a few productivity or ergonomic improvements to their routine but doesn't want a finicky, everything-but-the-kitchen-sink input device.

(Beware, OS X users: You should read the StudioMouse's compatibility caveats before you commit to it. The OS X-compatible MouseWorks 2.0 software is still in its early

adolescence, and many features available in version 5.7 for OS 8 and OS 9 are missing.)—JENNIFER BERGER

BRAVO EFFECTS AND ECHO TRANSITIONS

9X

Virtix, 603/893-1682, www.virtix.com; \$25 each or both for \$40



Virtix's Bravo Effects and Echo Transitions can add some sparkle (and smoke and lightning) to your iMovies. Of the two collections, Bravo's 20 effects are potentially the more useful. The One Color effect, for example, can replicate hand-tinted black-and-white photography by letting you control the amounts of red, green, and blue in an image. Bravo is also ideal for hallucinogenic dream sequences, with effects such as Sparkle, Spins, and Tunnel providing appropriate reality-bending imagery. The two most hyped effects, Laser and Lightning, create beams of light on a flat plane that extend outside the frame; however, we would have liked to see options for controlling the duration of the beams and some way to fire the laser between two points within the same frame.

Echo's 18 transitions range from a simple left-to-right Wipe to the subtle Fog and the *Scooby Doo*-inspired Dream. We're itching to find a good use for the Burn Through transition and the Stained Glass effect.

In terms of quality, all the effects end up rendering well, even in cases where the iMovie previews look cheesy, such as with the Rain effect.—JEFF CARLSON

WHO'S THERE FIREWALL ADVISOR 1.2

X

Open Door Networks, 541/488-4127, www.opendoor.com; \$49; upgrade, free



When we reviewed Who's There Firewall Advisor for OS X (Reviews, February 2002), we noted that the firewall-log analysis tool supported only Symantec's Norton Personal Firewall. Version 1.2 offers the welcome addition of support for Mac OS X's built-in ipfw Unix firewall. Once an ipfw log is present and enabled, Who's There automatically reads and analyzes it. If a log isn't available, the program prompts you to activate one. This feature makes the process of getting Who's There up and running completely painless. And although it was initially impossible to use the software with popular firewall-configuration tools such as Brian Hill's BrickHouse (Reviews, March 2002), Who's There now provides an excellent complement to BrickHouse, as well as to an OS X server firewall.—SHELLY BRISBIN

PANTONE COLOR CUE

Pantone, 866/726-8663, www.pantone.com; \$349



Pantone's Color Cue, a cordless spectrophotometer the size of a flashlight, is designed to determine the closest Pantone equivalent to the color of a physical sample. Its built-in LCD tells you the closest Pantone match and provides a host of other color information.

When we used the Color Cue to take color measurements from a brand-new *Pantone Coated/Uncoated Formula Guide* swatch book (where the swatches are larger than 14mm in diameter), the device was accurate only 9 times out of 10, which isn't a convincing ratio.

The Color Cue lets you search for a specific Pantone color, using its three-button menu system, and retrieve the color equivalents in many other formats, but this feature was irritating to use—the menu system is about as friendly as, and somewhat less logical than, the voice-mail options presented by major government agencies.

The measurement aperture is also on the large side—14mm in diameter—making it nearly impossible to get an accurate reading for small samples, which must also be perfectly flat.—BRUCE FRASER

MACJOURNAL 2.1

X

Dan Schimpf Software, <http://homepage.mac.com/dschimpf>; free



Dan Schimpf Software's MacJournal 2.1, a program that lets you create and modify virtual journals, is a model of utility and excellent application design. You can have an unlimited number of journals, and journal entries are organized by date and time. You can format entries to suit your needs, with options for text size, color, and font, as well as embedded graphic images. There's also a word-count tool, a spelling checker, and an incredibly useless but wickedly funny Taco feature that displays random quotes from *The Simpsons*. And though you can password-protect journals, you can't add them to your Keychain.

MacJournal lets you print any journal you create. And you can export a journal as text, RTF, or HTML—a great feature for the Weblog crowd—or e-mail it from within the program. The printed or exported journals won't include any added graphics—a minor, but irritating limitation. And the e-mailed entries don't fare well at all; all attempts to send a paragraph-long entry yielded an error message stating that the entry was most likely too big. (The company is aware of this problem, but it hasn't yet determined a viable solution.)—JEFFERY BATTERSBY

**You read Macworld for the best advice on Mac products...
now we'll show you where to find the best prices
on the coolest stuff—right at your fingertips!**

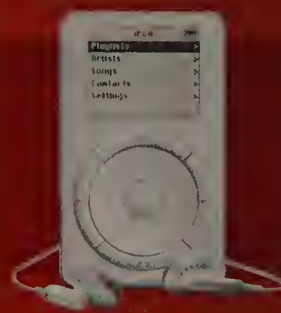
macworldproductfinder.com

**The Macworld Product Finder brings you
Macworld's trusted reviews on the best products,
PLUS a list of competitive prices from major online stores.
Finding the right product at the right price
is just a click away!**

**Don't spend hours searching on Mac product Web sites.
Find what you need NOW on**



Macworld
PRODUCT FINDER



Kinetic Arcade Fun, World War II Action, and Horror-Movie Chills

A Bountiful Harvest

AS THE WEATHER COOLS AND AUTUMN ARRIVES, IT'S TIME to spend more time indoors—and reap the benefits of a busy growing season in the Mac game world. From funky arcade games with cartoon colors and

a techno beat, to gritty World War II action-adventure scenarios, to a creepfest from a master of horror, there's more than enough in the silo to keep all of us well fed until next spring.

Pop Rocks

Whenever Ambrosia Software comes out with a new game, there's cause for both joy and alarm. Sure, Ambrosia's games are inexpensive and finely crafted, but they're also as addictive as a bowl of potato chips.

The company's latest offering, pop-pop, is no exception. It's the sophomore effort of developer Andrew Campbell, whose first Mac game was a delectable morsel of goodness called Battle-Girl. If you're familiar with Battle-Girl, some areas of pop-pop's design will seem familiar: a butt-shaking electronic soundtrack, psychedelic background sequences, and game play that's an homage to old-school arcade classics.

The game's brick-bashing mode will be familiar territory to all but the newest game players: You use a paddle positioned at the bottom of the screen to deflect a ball that pings wildly around your territory. Every time the ball strikes a brick, it smashes the brick to bits (except for some bricks that require more than one hit, and some that won't break at all). If you can clear your area of bricks, you win.

But pop-pop isn't derivative of old classics such as Breakout and Arkanoid, thanks to a huge twist that makes this game quite original: a Street



Pop Music Techno music, cartoon art, and addictive game play add up to Ambrosia's pop-pop, a winner of a game.

Fighter-style combat mode, in which you can challenge the computer or other players on the Internet (via Game-Ranger). You choose from several characters, each of whom has a special power that hinders an opponent's ability to effectively clear bricks. Mini T, for example, has Blow power, which pushes an opponent's paddle around with a great gust of wind. Zap creates sparks that repel an opponent's ball like a

fierce burst of static electricity. My personal favorite is Ducky, who has the power to fill an opponent's play area with rubber duckies.

That's not all. The bricks you bash are sent to your opponent's area to be cleared. If your opponent knocks those bricks down, they come back to you—twice as strong. Time and mistakes cause the bricks to descend closer to your paddle. If you can't clear them in enough time, you lose the round.

You've got more than just your special power to defend yourself with. Power-ups can give your paddle extra juice, allowing you to bash more than one brick at a time or send your field of bricks up a row. But, alas, there are also power-downs that can make your bricks descend a row, minimize the size of your paddle, or hold the paddle in place horizontally.

This frenetically paced game features animated characters cute and cuddly enough to merit their own line of T-shirts and plushy toys, and a thumping electronic soundtrack that makes you want to crank your speakers up a notch. What's more, the background of the playing field shimmers with a watery effect that's downright trippy. (You can turn it off if you find it too distracting.)

The Bottom Line At first glance, Street Fighter and Breakout may make very strange bedfellows, but >>

pop-pop's got a butt-shaking soundtrack and psychedelic arcade game play.

POP-POP

RATING: ★★★★★

PROS: Thumping music; trippy graphics; unique interface.

CONS: Special effects are distracting; complex game play.

PRICE: \$25

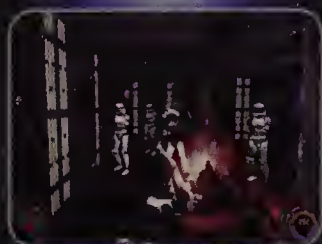
OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Ambrosia Software, 716/325-1910,

www.ambrosiasw.com

STAR WARS®

JEDI KNIGHT® II: JEDI OUTCAST™



TO KNOW THE LIGHT,
YOU MUST SEE THE DARK.



ASPYR™
www.aspyr.com



Violence



©2002 LucasArts Entertainment Company LLC. All rights reserved. Used under authorization. LucasArts and the LucasArts logo are registered trademarks of Lucasfilm Ltd. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries.

THE GAME ROOM

somehow, Ambrosia and Andrew Campbell have managed to fuse the two into an ingenious (and occasionally hallucinogenic) action game that's worth your attention.

Heavy Medal

The Nazi menace has been constant fodder for gaming over the years, and now and then there are interesting twists on the theme—for example, Return to Castle Wolfenstein (*The Game Room*, August 2002)

threw zombies and weird otherworldly monsters into the mix. But Aspyr's new Medal of Honor: Allied Assault is a more traditional (and historically accurate) example of the Nazi-hunting genre.

Medal of Honor: Allied Assault is a first-person shooter, but it's significantly more complicated than simply barreling in with both guns ablaze—that will often lead you to instant defeat. Each mission has a goal, whether it's stealing documents, planting bombs, or otherwise thwarting the efforts of your Nazi nemeses. You're given an arsenal of varied weapons to use to accomplish each mission, as well as limited amounts of ammunition and other resources that you must carefully manage.

You're outfitted with true-to-life rifles, sidearms, grenades, and other gear that will help you. Obviously, some aspects of reality have to be modified a bit to keep the game play interesting—such as instant recovery, thanks to health packs and canteens you'll find along the way—but an extraordinarily detailed graphics engine and realistic sound effects help immerse you in this reality.

Once you've completed Medal of Honor: Allied Assault's single-player mode, you'll find a wealth of opportunity to play



My Own Private Ryan Join forces with your buddies and go on important missions in Medal of Honor: Allied Assault.

online. Powered by the Gamespy game-finding service, Medal of Honor servers abound on the Internet. Some of these servers sport free-for-all deathmatches; others feature team-based game play that requires you to play a specific role on a team in order to reach an objective.

Single-player and multiplayer modes alike often depend on your listening for cues that tell you where your enemies are. The sound effects in Medal of Honor are terrific—but they don't distinguish left from right as clearly as some other Mac games do.

The Bottom Line Great graphics, detailed and challenging missions, and varied multiplayer modes keep Medal of Honor: Allied Assault interesting for hours. The lack of 3-D audio is a drawback, though, especially in multiplayer games.

A Day at the Beach

Long before video games were all the rage, shooting galleries were an arcade staple. Taking up a toy rifle and aiming at targets was a simple pleasure. When I play MacSoft's Beach Head 2002, that's what I think of: simple, repetitive fun.

And apparently, I'm not alone. The game's predecessor, Beach Head 2000, was one of MacSoft's more popular games targeted at casual gamers—despite some absolutely scathing reviews when it appeared on the scene. There's just something mindlessly addictive about solely occupying a bunker on a nondescript beach someplace as hordes of invaders charge your position, begging to be mowed down by your array of powerful weaponry.

Beach Head 2002 hasn't strayed too far from the original: it's more of the same old fun. Soldiers charge your bunker position

MEDAL OF HONOR: ALLIED ASSAULT

RATING: ★★★★★

PROS: Detailed graphics; real-life World War II missions and weapons.

CONS: Lack of 3-D audio causes misleading audio cues.

PRICE: \$50

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Aspyr Media, 888/212-7797, www.aspyr.com

Tom Clancy's GHOST RECON™

*Swift.
Silent.
Invisible.*



Tom Clancy's
GHOST RECON
DESERT SIEGE

Tom Clancy's
GHOST RECON



INCLUDES
Tom Clancy's
Ghost Recon™
& Desert Siege™
Mission Pack

MATURE
M
CONTENT RATED BY
ESRB

Blood and Gore
Violence



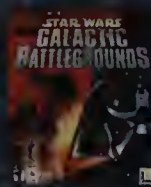
ASPYR
www.aspyr.com

©2002 Red Storm Entertainment, Inc. Red Storm and Red Storm Entertainment are trademarks of Red Storm Entertainment, Inc. Red Storm Entertainment, Inc. is a Ubi Soft Entertainment company. Tom Clancy's Ghost Recon is a trademark of Rubicon, Inc. under license to Ubi Soft Entertainment, Inc. Desert Siege is a trademark of Ubi Soft Entertainment, Inc. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks are property of their respective owners. All rights reserved.

STAR WARS GALACTIC BATTLEFIELDS CLONE CAMPAIGNS

FEATURING
CONTENT FROM

STAR WARS
EPISODE II
ATTACK OF THE CLONES.



Requires *Star Wars®*
Galactic Battlefields™



ASPYR™



Violence



© 2002 LucasArts Entertainment Company LLC. © 2002 Lucasfilm Ltd. & TM or ® as indicated. All rights reserved. Used under authorization. LucasArts and the LucasArts logo are registered trademarks of Lucasfilm Ltd. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks and trade names are properties of their respective owners.

THE GAME ROOM



Shooting Gallery See the targets, shoot the targets—that's pretty much what you get with MacSoft's *Beach Head 2002*.

on foot—under the protection of armored personnel carriers—or parachute from transport planes overhead; it's up to you to nail them before they make it to you. Meanwhile, you'll have to contend with tanks, jets, helicopters, and other nasties as they take aim at you. To dispel each wave of attackers, you use various weapons ranging from guided missiles to your trusty sidearm—all of which are equipped with limited amounts of ammunition that you must use sparingly.

Unfortunately, the game's response to mouse commands is slow and sloppy.

And I often had to completely disregard the game's crosshairs in order to line up my shots, as I would fire under or over the target, even though it looked as though I had lined up the shot perfectly.

Firing at everything that moves is about as complicated as *Beach Head 2002* gets. This is no *Medal of Honor: Allied Assault*, but for \$20, my expectations were a bit more modest.

The Bottom Line Sometimes you want a game that challenges you, and sometimes you want a game that's just mindless fun. For those mindless moments, *Beach Head 2002* can certainly fill the void.

BEACH HEAD 2002

RATING: ●●½

PROS: Mindless arcade-style fun.

CONS: Gets old fast; sluggish input-device response.

PRICE: \$20

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: MacSoft, 800/229-2714,
www.wizworks.com/macsoft

Mac Speakers Make Some Noise

No decent Mac gaming system is complete without top-notch speakers. Even more than game controllers or other gadgets, speakers bring games to life. Without dropping a huge amount of cash, you can turn your Mac into a great stereo system. Here's a look at some 2.1 audio configurations—in other words, two satellite speakers combined with a subwoofer.

Arguably the most attractive sound system for the Mac is the venerable Soundsticks system from Harman Multimedia (www.harmanmultimedia.com). These things really were made for the Mac. They plug into your Mac's USB port and pump out audio through a trick subwoofer, paired with two minitowers that are each equipped with four one-inch speakers made out of clear plastic material. Of all the systems I've seen, these look the best with my Macs—but they're weak at reproducing midrange sound, and at \$200, they're pricey.

The JBL Creature



Another Harman offering is the JBL Creature. At \$130, they're less expensive than the Soundsticks, but sonically they're quite similar. The difference is that the Creature's satellite units have only one speaker instead of four, though they sound very rich. Unlike the Soundsticks, the Creature uses your Mac's headphone jack instead of USB—admittedly, a more primitive way of connecting, but it's a way less prone to USB-related problems and more compatible with other non-Mac devices. The Creature is molded in gray, white, or blue, so you can match your speaker set to your Mac's decor, too. It even casts an eerie glow on your desktop—a nice sci-fi touch for your Mac gaming setup.

Level 9 Sound Designs (www.monsoonspeakers.com) brings up the rear with two sets of low-priced but well-configured 2.1 systems—the \$100 PlanarMedia 9 and the \$80 PlanarMedia 7. Their boxy look is more utilitarian than that of the Harman Multimedia speakers, but what PlanarMedia's speakers lack in cosmetic appeal they more than make up for in sound quality. Both systems feature beefier subwoofers than the Harman systems do—just the thing to get your booty shaking during a late-night pop-pop session.

Bump in the Night

Technical snafus set last year's release of Clive Barker's *Undying*, from Aspyr Media, way back. But this game is worth the wait.

This period action game is set in the 1920s, when Great War veteran and expert of the supernatural Patrick Galloway is summoned to the ancestral Irish estate of his war buddy Jeremiah Covenant. With his siblings dead, Jeremiah is the last living remnant of the Covenant clan. But the mansion and its grounds are far from quiet—alas, Jeremiah's brothers and sisters have returned from beyond the grave in an attempt to free the Undying King. To this end, they haunt the ancestral grounds with fearsome and horrific creatures from the netherworld. As if that weren't enough, Galloway must also square off against Otto Keisinger, a fierce rival on his own quest for ultimate supernatural power.

Horror author Clive Barker was instrumental in the creation of *Undying*; he even contributed his vocal talents to the game. Barker's rich and descriptive prose has been fertile ground for visual entertainment over the years—horror-movie franchises *Hellraiser* and *Candyman* are based on his works. It's natural, then, that Barker would extend his reach into computer games. If you're fond of Barker's macabre visions, you'll love *Undying*. It's the ideal game to play late at night with the volume up and the lights down—you'll jump out of your seat.

The game is a first-person shooter. As Galloway, you must unravel the curse and the undead Covenant siblings' sinister plans before they do in your friend Jeremiah and unleash horrors upon an unsuspecting world. To that end, you're armed with devices both mystical and mundane—your trusty military-issue revolver, for example, is just the thing to use against an errant Howler before it slashes you apart and feasts on your viscera. The Gel'Ziabar Stone, which glows bright green whenever mystical energies are nearby, lets you more fully understand what's happening around you.



Creepshow Easily spooked? Play Clive Barker's *Undying*, and it won't be long before you're jumping out of your seat.

Undying's visual quality is modestly diminished by the age of its underlying Unreal Tournament engine, and frequent level loading forces you to pause abruptly in the middle of your explorations. But technology limitations aside, the game's designers have done a phenomenal job of creating a genuinely frightening atmosphere. Dynamic music and sound effects complete the immersion into this otherworldly game.

I experienced a few random lockups and crashes while playing the game in OS X; I learned quickly to save my game frequently, and I'd recommend that other *Undying* players do the same.

The Bottom Line Ever yelled out, "Don't go in to that darkened room!" to the protagonist in a horror movie? You'll find yourself doing the same thing here—but this time, you're that hero, unable to resist the compulsion to visit those darkened recesses, even though it's your own neck that's at risk. □

CLIVE BARKER'S UNDYING

RATING: ●●●½

PROS: Frightening environments and critters; engrossing story.

CONS: Old graphics engine; occasional crashes; frequent level-load breaks.

PRICE: \$30

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Aspyr Media, 888/212-7797, www.aspyr.com

Blasting demons, repelling invading armies, and infiltrating Nazi strongholds is all in a day's work for MacCentral.com Senior Editor PETER COHEN, who likes to relax in the tub with his rubber ducky, Fred.

The Sims Vacation

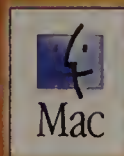
EXPANSION PACK



EXTREME HOLIDAY



ROMANTIC GETAWAY



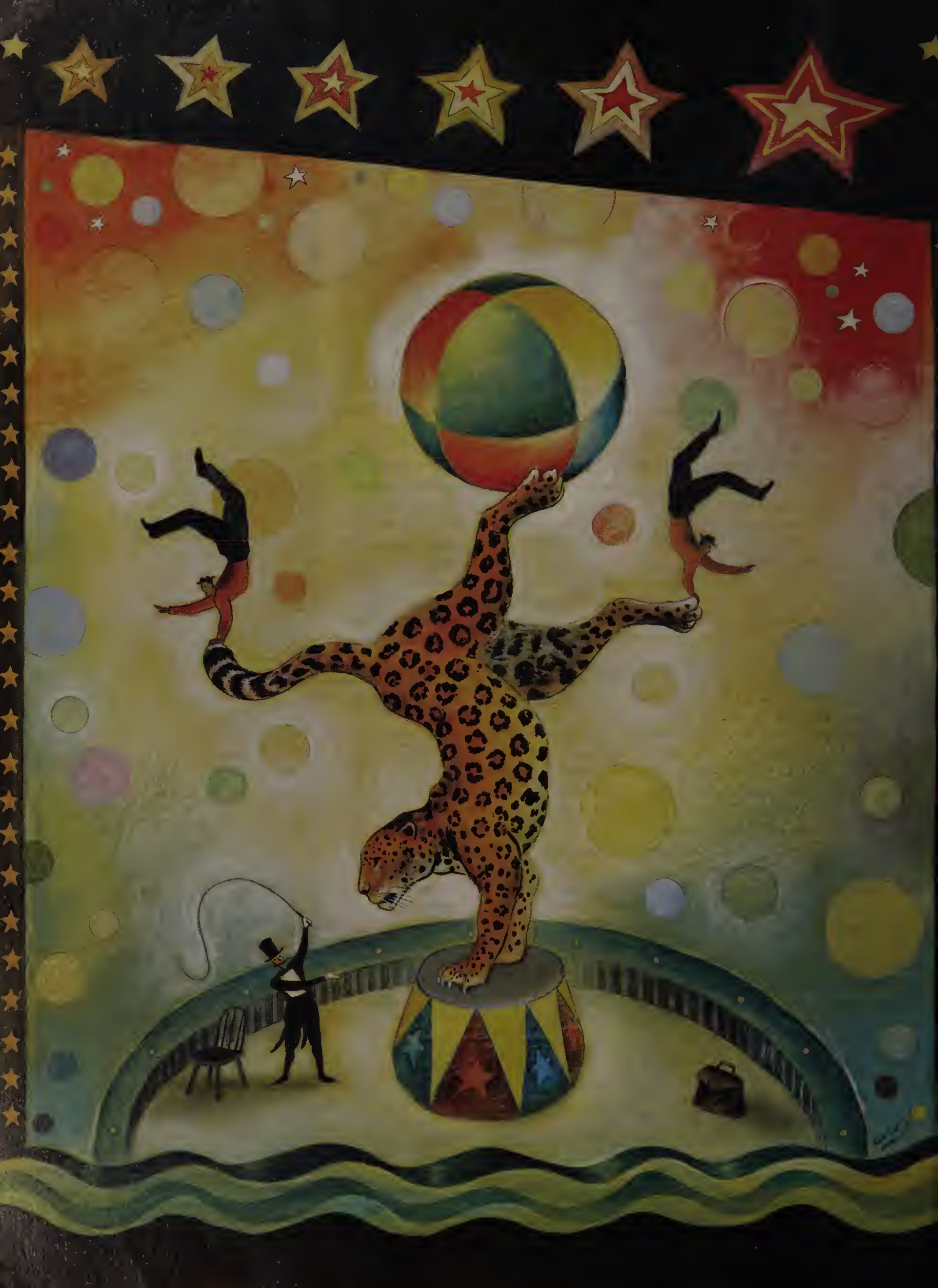
ASPYR
Authorized Electronic Arts™ Distributor
www.aspyr.com



COMIC MISCHIEF
MILD VIOLENCE
SUGGESTIVE THEMES



©2002 Electronic Arts Inc. EA GAMES, the EA GAMES logo, The Sims, Maxis, the Maxis logo, and Electronic Arts are trademarks or registered trademarks of Electronic Arts Inc. in the U.S. and/or other countries. EA GAMES™ and Maxis™ are Electronic Arts™ brands. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks are property of their respective owners. All rights reserved.





TAME JAGUAR



BY DAVID POGUE

Overwhelmed by the
Latest Mac OS Update?
Get More Productive
with These OS X 10.2 Tips.

A JAGUAR IS A BIG CAT—fast, powerful, and beautiful to watch. But if you're not careful, it'll have you off balance in the blink of an eye. The same goes for Apple's Jaguar, Mac OS X 10.2.

The latest Mac OS is reportedly loaded with more than 150 new features. At least a few of them are visual touch-ups: the spinning "wait" cursor is fancier, there's a new screen-saver module, and you can now make your desktop picture change automatically at regular intervals. But you didn't shell out \$129 (not to mention the money you paid for your Mac) to stare at your desktop all day.

Fortunately, the new features also include some hum-dinger productivity boosters. Here's a guide to making this wild animal work for you, not against you. (For troubleshooting tips, see "Troubleshooting Jaguar.")

Find It Faster

How much time do you waste rooting around in your folders, trying to find certain files? One of Jaguar's biggest productivity boosts comes from Apple's radical redesign of the way we search. In fact, you now have two different tools for this purpose—and *neither one* is Sherlock. (Sherlock now does nothing but search the Web.)

The Search Bar The Search bar is especially convenient because it's at the top of every Finder window and always ready for action. After 18 years, the Finder has finally earned its name! If you don't see this little round-ended box, make sure your Finder toolbar is visible (press ⌘-B) and wide enough to expose it. Also, make sure your toolbar isn't in Text Only mode—look under View: Customize Toolbar and double-check the Show pop-up menu.

TROUBLESHOOTING JAGUAR

It's awfully hard to be productive when your computer doesn't work. Here's how to deal with problems you may encounter after upgrading—there are new features that can help.

Soothe Ownership Pains Changes in the Finder's Info window (⌘-I) make it easier to solve one of OS X's most common and frustrating problems: error messages that say, "You do not have sufficient access privileges" (typically, to open, move, or delete a file).

To remove most of these roadblocks, you need to make yourself the file's owner and then enable Read & Write access. (Just remember that some files—such as ones in the System directory—are usually best left alone.) It sounds simple. But how do you make this change?

The Privileges pane in OS X 10.1's Info window listed a file's owner and group assignments, but it provided no way to modify the settings. To do so, you needed to use Terminal or a third-party utility such as XRay (\$10; www.brockerhoff.net/xray/). In Jaguar, you can open an item's Get Info window and change its owner there. Click on the Ownership & Permissions triangle and, when the options appear, click on the padlock to unlock access to the needed settings. Finally, from the Owner pop-up menu, change the owner to yourself. You can now also change the owner's access settings here.

Patch Up Permission Problems

Being able to change ownership and access settings from the Get Info window is great—as long as you know which file needs fixing and what the changes should be. This isn't always easy to figure out. For example, if a Type -192 error occurs while you're trying to mount a disk image, you may not immediately think, "Aha! A permissions error." But that's most likely what it is.

Jaguar helps out here, too. Launch Disk Utility (Applications: Utilities) and select the First Aid tab. Then select the current start-up volume. You'll see two new options: Verify Disk Permissions and Repair Disk

Permissions. If you click on the Verify button, First Aid generates a list of permissions errors and what the correct settings should be. Click on the Repair button to fix the errors. You can accomplish a similar feat in OS X 10.1.5 via Apple's Repair Privileges utility (available for download from <http://docs.info.apple.com/article.html?artnum=106900>). This utility restores the default privileges settings of all Apple-installed software. Unlike First Aid, it has no option for viewing changes before they're made. In any case, the current 1.1 version of Repair Privileges doesn't work in Jaguar, so First Aid is the only choice for Jaguar users.

Install without Fear The updated version of the Installer utility in Jaguar resolves an especially irksome issue. Suppose your OS X 10.1.5 start-up volume became so messed up that you wanted to completely reinstall your operating system.



You get out your OS X Install CD, which most likely contains an older version of OS X. This means that reinstalling will temporarily downgrade you. Even if the Installer permits this "downgrade upgrade" (which it often will not), Apple strongly advises against it, stating that if you need to reinstall an earlier version of OS X, you should choose the erase option in the OS X Installer.

Jaguar's Installer includes a new archive option that will save you from having to erase your drive in such situations. Similar to a "clean reinstall" in OS 9, archiving moves the currently installed software to a folder called Previous Systems. (Once the system is there, you can't boot from it.) Then a completely fresh copy of Jaguar is

installed. To do this, select the desired volume in the Installer's Select A Destination screen, click on the Options button, and select Archive And Install rather than Upgrade Mac OS X.

Watch Out for Software Conflicts

Jaguar has a lot to offer, but be prepared for numerous software conflicts after you upgrade. Symptoms may include crashes of login items at start-up, application-launch failures, and application features that no longer work as expected. In most cases, you can resolve problems by updating the offending third-party software (usually available from the company's Web site).

Certain items that load at start-up (as listed in the Login Items System Preference pane) are particularly prone to break in Jaguar. For example, Palm's Transport Manager crashed often in my tests. Removing these items from the Login Items list is your best bet until updates are released.

Also, third-party software that adds an item to the right side of the menu bar will no longer work—Apple added a restriction in Jaguar that prevents these from appearing. If you want to override this, install Menu Extra Enabler (free; www.unsanity.com/download.php?product=mee). Using this tool, I was able, for example, to resurrect Aladdin's Magic Menu.

Speed Up Help

Other problems may be caused by files that carried over from OS X 10.1 and now reside in your Home directory (~). For example, if Help Viewer crashes on launch or is unusually slow, try deleting aliases to third-party Help files, as found in ~: Library: Documentation: Help and ~: Library: Preferences: Apple Help Prefs. Also delete the com.apple.help.plist file in ~: Library: Preferences if you have such a file.

Look for Updates Jaguar may cause problems with some external hardware (such as a CD-RW drive that fails to show up in iTunes or Toast). Problems with SCSI cards and devices are likely. Fixing these conflicts will typically require a driver and/or firmware update from the company. But in some cases, you may need to wait for Apple's next Jaguar update.—TED LANDAU

To use the Search tool, open the window where you want to search—the tool will look in this window *and* in all the folders it contains. Click in the Search bar, type a few letters of the name of the file or folder you want to find, and then press return or enter.

You can manipulate the list of search results much as you would a list of files in a standard Finder list-view window. For example, you can highlight multiple items simultaneously: highlight all of them by choosing Edit: Select All (⌘-A), highlight individual items by ⌘-clicking on them, drag diagonally to enclose a cluster of found items, and so on. You can even rename something right in this list—click on its name, wait for the renaming box, and type. You can jump to the actual item, wherever it happens to be sitting on your hard drive, by highlighting it in the list and pressing ⌘-R.

You can also manipulate these results as you could in the Sherlock of old: open something by double-clicking, move it by dragging out of the window, copy it by option-dragging out of the window, make an alias of it by ⌘-option-dragging, and so on. If you'd like to repeat the search using a different search phrase, click on the Back button in the toolbar, or press ⌘-[(left bracket), to return to the window where you began.

The Find Command The Search tool is simple, fast, and convenient. But it's not the most powerful search program on earth. It looks only for files' names, not their sizes, dates, and so on. And it can't look for words *inside* your files.

For these purposes, you need OS X's new file-finding tool, Find. To get started, choose File: Find (or press ⌘-F). Specify where you want to search—for instance, Everywhere (on your Mac, network, or connected Internet disks) or Specific Places (drag disk or folder icons into the list or click on Add). Then indicate what you want to find.

The first boxes you'll see—File Name and Content (that is, words inside the files)—are only starting points. In all, Find lets you define a search with as many as eight criteria: name, contents, date modified, date created, visibility, kind, file size, and extension (such as *.jpg*). To narrow your search, choose from the Add Criteria pop-up menu at the bottom of the Find window. To delete a row from the Find window, click on the - (minus sign) button at the right side of the window.

But that's just the beginning. To the delight of propeller heads around the world, OS X 10.2 introduces AND searches. That is, you can add certain criterion rows (file name, date created, and date modified) to your Find setup *more than once*, for even more-specific searches.

To find files you created between two specific dates, for example, you could set up two "date created" rows, one that specifies the starting date and one for the ending date. Just add one criterion row of the appropriate type, and then click on the + (plus sign) button at its right end. You get a duplicate row. For

Speedy Keyboard Shortcuts

Learning keyboard shortcuts is the best way to steal back minutes of your day *and* protect your arms from repetitive strain injuries. After all, the time you spend reaching for the mouse and clicking through menus adds up. If you do only one thing to make yourself more efficient, pick a few of these shortcuts and commit them to memory.

KEY COMBINATION	RESULT
Start-up Keystrokes	
C	Starts up from a CD.
D	Starts up from the hard disk's first partition.
N	Starts up from the network server.
T	Puts the Mac into FireWire Target Disk mode.
X	Starts up in OS X (if OS 9 is on the same disk).
shift	Prevents start-up items from opening.
option	Shows icons of all start-up disks or partitions, so you can choose one for start-up (older machines: restarts in OS 9).
⌘-option-shift-delete	Starts up from an external drive (or CD).
⌘-V	Shows Unix console messages during start-up.
hold mouse button down	Ejects a stuck CD or DVD.
Finder Keystrokes	
⌘-option-W	Closes all Finder windows.
⌘-up arrow	Opens the parent folder.
⌘-option-shift-up arrow	Selects the desktop.
tab	Selects next item alphabetically.
shift-tab	Selects previous item alphabetically.
⌘-shift-H	Opens your Home folder.
⌘-shift-A	Opens your Applications folder.
option-click on the Minimize button	Minimizes all Finder windows.
General Keystrokes	
⌘-tab	Switches to the next open program—press <i>once</i> and release the ⌘ key to switch to the program you used most recently.
⌘-shift-tab	Switches to the previous open program.
⌘-~ (tilde)	Switches to the next open window in this program.
option-Empty Trash	Empties the Trash without asking, "Are you sure?" (Also nukes locked files.)
⌘-option-D	Hides/shows the Dock.
⌘-click on a Dock icon	Reveals the original item in the Finder.
⌘-option-click on a Dock icon	Switches to this program and hides all others.
⌘-option-H	Hides all windows except the one you're in.
On Keyboards without a Power Key	
control-eject	Brings up the dialog box for shutdown, sleep, or restart.
⌘-control-eject	Forces a restart.
⌘-option-eject	Puts the Mac to sleep.
⌘-control-option-eject	Shuts down.

instance, if you wanted to find notes about your first impressions of Jaguar, you could make one row that looked for files created after August 24 and another that looked for files created before September 1.

Get Informed

Who can fathom the mysteries of Apple's brain? Lo and behold, the Show Info command of OS X 10.1 has morphed back into the Get



Take keyboard shortcuts one step further with CE Software's \$80 QuicKeys X 1.5.3 (800/523-7638, www.cesoft.com). See "Streamline Your Routines," *Secrets*, June 2001, for ideas.

>>

Info command of OS 9—but with some welcome changes that can improve your efficiency.

A Distinguished Panel If you click on an icon and then choose File: Get Info (or control-click on an icon and choose Get Info from the contextual menu), you open a collapsible, multi-panel screen that provides a wealth of information. For example:

- For a disk, you get statistics about its capacity and how much of it is full—a handy gauge that helps you decide whether it might be time for a house-cleaning binge.
- For a document, you get to see when it was created and modified and which programs it “belongs” to—useful when you’re trying to figure out why a JPEG file is opening in OS X’s Preview instead of in Adobe Photoshop, for example.

- If you open the Get Info window when *nothing* is selected, you get information about the desktop itself, including the amount of disk space consumed by everything sitting on it. As a result, you can use the desktop itself as a loading dock for, say, a CD you’re about to burn, using Get Info to make sure you haven’t exceeded its maximum capacity of 650MB.

- If you choose a gaggle of items all at once, the Get Info window shows you precisely how many you highlighted, breaks them down by type (“23 documents, 3 folders”), and totals their file sizes for you. This is a great opportunity to change certain file characteristics on a lot of files at once, such as locking or unlocking them, hiding or showing their filename extensions, changing their ownership or permissions, and so on.

Uniwindow versus Multiwindow In OS X versions 10.0 and 10.1, a single Info window remained on the screen as you clicked on one icon after another. That reduced clutter but didn’t let you compare the folders’ statistics side by side. OS X 10.2 returns to

the old way: a new dialog box appears each time you press ⌘-I. But the uniwindow approach is still available. Highlight the icon and press ⌘-option-I (or hold down option and choose Show Inspector from the File menu).

Control Classic

However much Steve Jobs would like us to believe that OS 9 is dead, most of us still spend at least some of our lives working in it, either by restarting a Mac in OS 9 or by using an application in OS X’s Classic mode. Fortunately, all of this is much easier in OS X 10.2.

Choose a Specific System Folder

In the dusty days of OS X 10.1 and earlier, everyone who used a particular Mac had to use the same copy of OS 9 as the basis of the Classic experience. It was just too bad if each user wanted to use different fonts or to set up preferences in a particular way—they’d have to reset these each time.

In OS X 10.2, you can open the Classic panel of System Preferences and choose any OS 9 System Folder you like. It doesn’t have to be the same one your boss, parent, sibling, or kid uses.

One-Key Switching between 9 and X The prescribed way to switch between systems is only slightly less tiresome than filling out the 1040 tax form: open System Preferences, click on Startup Disk, click on the OS 9 System Folder you want to restart from, click on Restart, and then click on OK. Going back to OS X in the opposite direction is just as tedious.

Fortunately, there’s a brilliant, timesaving shortcut. When you’re in OS 9 and want to restart the machine in OS X, just restart as usual—and hold down the X key. After a couple of screen blinks, you’ll find that the Mac starts up in OS X as usual. (Be forewarned that this trick works only if OS 9 and OS X are on the same hard drive.)

The only downside to the X-key trick is that it’s one-way. You can’t, for example, hold down the 9 key to restart in OS 9—at least not if OS 9 and OS X are on the same drive. If you’ve installed OS 9 and OS X on two different drives or partitions, though, there is a trick that can help.

Make sure OS 9 is on the *first* partition, and leave OS X as the start-up disk. When you want to duck back into OS 9, hold down the D key just after the start-up chime, and your Mac will start up in it. As it



As in older versions of Mac OS, you can press ⌘-tab to move through open programs. But in OS X 10.2, a single press of ⌘-tab instead takes you to the program you used *most recently*. This saves you from ⌘-tabbing your way through all open programs in the Dock just to “get back” to the one you really want.

turns out, the D key tells the Mac to start up from the first internal disk or partition that contains a working System Folder of any type. If it's an OS 9 partition, then that's what you get. To return to OS X, just restart the machine without holding down any keys at all.

There's one more trick that saves time when you're going between OS 9 and OS X if you've installed each operating system on a different disk or partition (it may not work on the oldest OS X-compatible machines, however). Press the option key as the Mac starts up. You'll see the icon of each disk or partition. Click on the one you want (OS 9 or OS X), and then click on the continue arrow.

Look at Things a Different Way

You might not think that some of the cosmetic touch-ups in OS X 10.2 could help you work more efficiently, but think again.

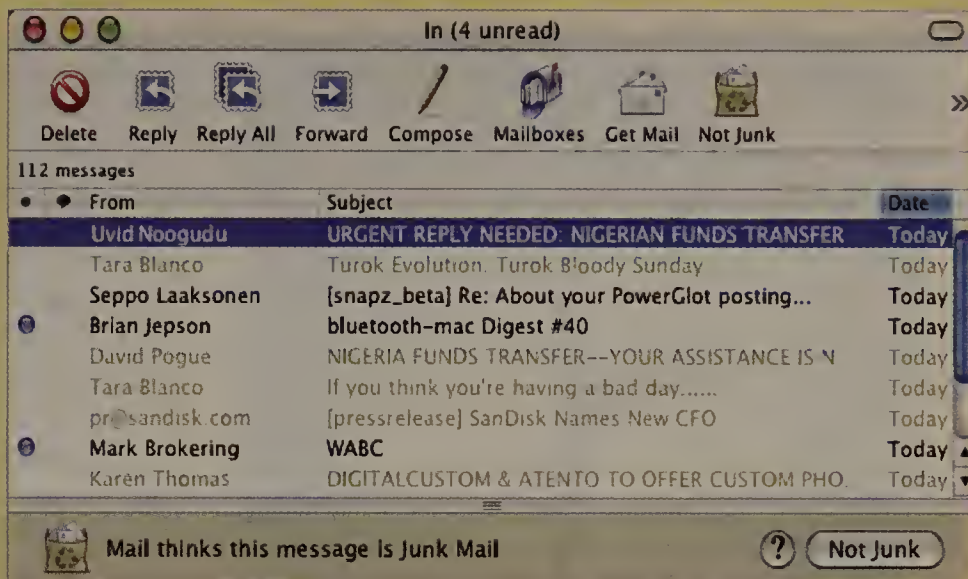
Just Your Type As Apple's screen resolutions go higher and higher, on-screen type gets smaller and smaller. If squinting slows you down, you'll appreciate a feature never before available in Mac OS or Windows: you can now adjust the type size for item names on a window-by-window basis.

Open the window where you want to enlarge (or shrink) the font. Then choose View: Show View Options (or press ⌘-J). At the top of the window, click on either This Window Only or All Windows, and then use the Text Size pop-up menu. Why would you want to adjust the font size in different windows? In crowded list views, you might want smaller type so you can fit more into a single view and thereby avoid scrolling. In windows that are less densely populated, you can afford to make the type easier on the eyes.

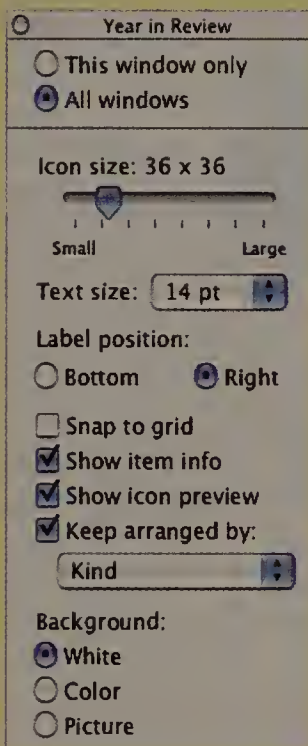
Icons of Your Own OS X 10.2 offers a couple more ways to streamline your desktop. File names can appear *beside* full-size icons rather than beneath them. In effect, you get a multicolumn list view with all the benefits of the icon view, saving you a lot of scrolling and hunting.

Furthermore, folders can now tell you how many files they contain. Also, most graphics files tell you their size, in pixels, and audio and video files can tell you how long they are, in minutes and seconds. Often, that's just enough extra information to help you pick out the right file or folder—and save you a bunch of extra clicks (see “Side by Side”).

To use these options, open an icon-view window. Choose View: Show View Options. Under the Label Position heading, select Right to put the name of each item beside its icon. Then turn on Show Item Info. Next to each icon, a new line of information appears in blue type. It will tell you how many files are inside a folder or give the specs of most graphics, audio, or video files. This trick doesn't work for every file format—for instance, JPEG graphics or Real Audio files. But it does work across a network, even when you're looking at files on a Windows machine.



The Spaminator Train Mail's new antispam feature by flagging messages as Junk or Not Junk during the first weeks of use. When it seems accurate, switch to Automatic mode. That way, these brown-labeled messages won't appear in your in-box at all.



Side by Side Use the new View Options features (left) to summon a line of blue text that identifies the length of an audio or video file, the number of items in a folder, or the dimensions of graphics files in any format except, for some reason, JPEG. (Apple says it's a bug.)

Maximize Apple Mail

Most of us spend much of the day sending and receiving e-mail messages, so any improvements to our e-mail client can add up to a lot of time saved.

Many of the improvements in OS X's built-in Mail program are tiny tweaks: for example, you can control-click on almost anything for a pop-up menu of useful commands, a little orange symbol next to a name lets you know when one of your iChat buddies is online, and Mail remembers the positions of your open windows.



You don't have to leave iChat open to get instant messages or know if buddies are online. Open the iChat preferences and deselect When I Quit iChat, Set My Status To Offline. Now your iChat menu bar will remain active, and you'll stay online even when you quit the program itself.

>>



There's more to OS X 10.2 than meets the eye. Some small tricks don't fit neatly in any category but are useful nonetheless. Here are ten quick Jaguar tips that will make your Mac more productive (or at least more fun to use).

10 QUICK TIPS

1. In OS X 10.2, you can lock your Mac from the menu bar. Just launch Keychain Access (found in the Utilities folder) and select Show Status In Menu Bar from the View menu. To lock your Mac, choose Lock Screen from the Lock menu that appears in the menu bar. Your Mac will instantly display the currently chosen screen saver, which can't be revoked until you enter your login password.

2. To cycle through views in many OS X 10.2 application toolbars (Mail and Preview, for example), command-click on the Toolbar button (the transparent button in the upper right corner of a document window). Once you do, you can cycle through the following toolbar views: Large Icon And Text, Small Icon And Text, Large Icon Only, Small Icon Only, Large Text Only, and Small Text Only.

3. Need to see an Address Book contact's phone number from across the room? Open OS X 10.2's Address Book, select a contact, click and hold on the Phone heading next to the phone number, and select

Large Type—the number appears in gigantic type across your screen. To see such large numbers in Calculator, control-click on the total and select Large Type.

4. Don't miss the Calculator utility's impressive productivity boosters. It not only sports a "paper tape," so you can view past calculations, but also performs conversions (via the Convert menu)—including speed, volume, and temperature. It can even convert currency and download the latest currency rates from the Internet—select Convert: Update Currency Exchange Rates. (What happens if you don't have a constant connection to the Internet? Your Mac will dial your ISP if it's configured to do so when an Internet connection is requested.)

5. Do you want to use your scroll-wheel-equipped mouse to move through windows horizontally instead of just vertically? Can do—in Finder windows and Microsoft Excel X. Hold down the shift key and move the wheel down to scroll to the right and up to scroll to the left. In Microsoft Word, hold down the control key and scroll to zoom in and out of the document.

6. Place helpful commands at your fingertips by double-clicking on the Script Menu.menu item inside the Application folder's AppleScript folder. Doing so adds an AppleScript menu with more than 70 scripts to OS X 10.2's menu bar. For instance, from here you can attach a script to a drop-box folder that causes an alert to appear each time a coworker adds a new item to that folder.

7. Speaking of AppleScript, you can download even more scripts to add to OS X's Toolbars from www.apple.com/applescript/toolbar. A particular favorite is the Snapshot script that can memorize and restore a particular Finder window configuration.

8. When is a user not a user? When it's a project. You can easily archive projects in OS X 10.2 by creating a new user, assuming that user identity to create a project—a newsletter or Web site, for example—and then deleting that user. When you do, all the files within that user's folder are placed in a single disk image (.dmg) file inside the Deleted Users folder in OS X's Users folder (Computer: Users: Deleted

Users). Should you need these files at a later date, simply double-click on the .dmg file to mount its image and grab the files you need. Yes, you could copy the entire Users folder to archive it, but this is faster and a bit tidier.

For example, your next Macintosh users' group newsletter could be a "user." Just launch the Accounts System Preference and click on the New User button. In the resulting sheet, type a name and a password for the user. If you'd like those working on the newsletter to have administrative privileges, select the Allow User To Administer This Computer option. Once you've wrapped up the newsletter, delete the user (project) and find all the files tied up in a neat package—in a .dmg file.

9. To take a screen shot of a particular object—an open window or an active menu—press ⌘-shift-4 and then the spacebar. The cursor will change to a camera. Place it over the object you want to capture (selected objects turn light blue) and click your mouse button. The screen shot is saved as a PDF file on the desktop.

10. And finally, one antiproduktivity tip: Make your OS X 10.2 desktop come alive by replacing your desktop picture with a running screen saver. To do so, open the Screen Effects system preference and choose a screen effect. Open Terminal and type `nice +20 /System/Library/Frameworks/ScreenSaver.framework/Resources/ScreenSaverEngine.app/Contents/MacOS/ScreenSaverEngine -background &`.

Then press return to make the active screen saver your desktop picture. When you press return, a number will appear in the Terminal window—it follows [1]. This number is the process you just invoked. To turn off this effect, type `kill` and the process number—`kill 541`, for example. Note that using a screen saver as a background will affect the performance of even the fastest Macs. The `nice +20` portion of the command tells the OS to give its attention to other processes when necessary. For better performance from the effect, don't include `nice +20` in the command.

To see this trick taken to its full potential, use it with the \$22 SereneScreen Marine Aquarium (www.serenescreen.com).—CHRISTOPHER BREEN

Using the Junk Mail Filter But surely the most talked-about item is the new Junk Mail filter. You'll see its effects the very first time you check your messages: a certain swath of message titles appears in color. These are the messages that Mail considers junk.

Your job is to supervise Mail's coloring job. If you get spam that Mail misses, click on the message and then click on the Junk button at the top of its window (or the Junk icon in the toolbar). If Mail flags legitimate mail as spam, swat it gently on the nose and click on the Not Junk button. Over time, Mail filtering should improve (see "The Spaminator").

The only trouble with this so-called Training mode is that you have to trash the spam yourself. Once Mail perfects its filtering skills, choose Mail: Junk Mail: Automatic. From then on, Mail will automatically file spam in a Junk mailbox, where it's easier to scan and delete the messages en masse. (It's never a good idea to send messages directly to the Trash. Legitimate ones could be caught by accident, and you'd never know.) Voilà: the time you used to spend manually deleting messages titled "Make \$1,000 by Salting Crackers in Your Own Home!" is yours again.

By editing the Junk *rule*, or filter, you can make the sieve more or less restrictive. For example, you could click on the + (plus sign) button next to one of the conditions for the junk mail and then choose Account from the new pop-up menu: the filter would apply only to one of your e-mail accounts. To learn more about getting the most out of filters, see "Stop Spam!" *Secrets*, August 2002.

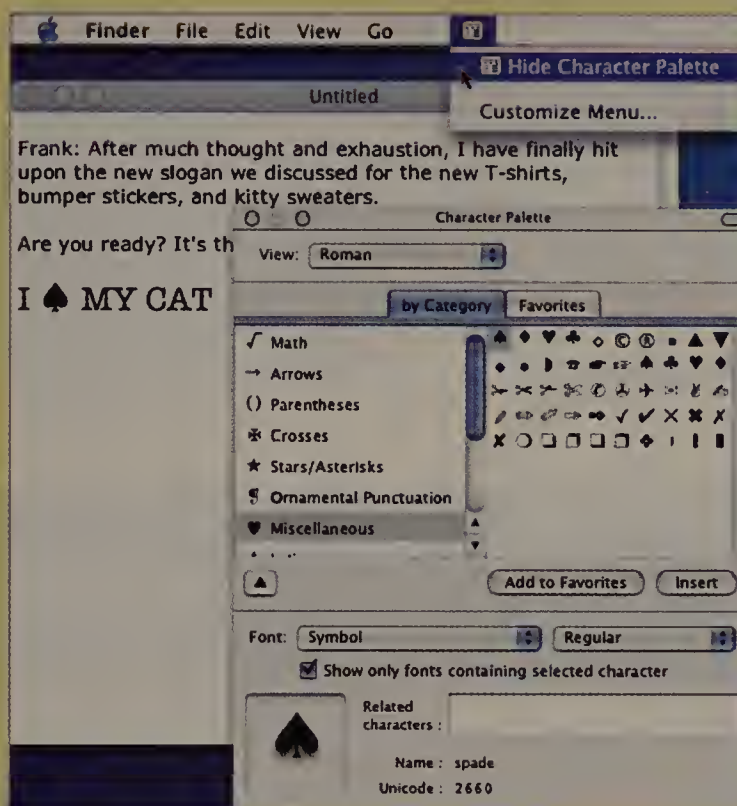
Stop Fumbling for Fonts

You've been hired to design a brilliant new bumper sticker for the ASPCA. With only minutes before the deadline, it hits you: "I ♠ My Cat." Only one thing stands between you and a well-deserved promotion: finding a gosh-darned ♠ symbol.

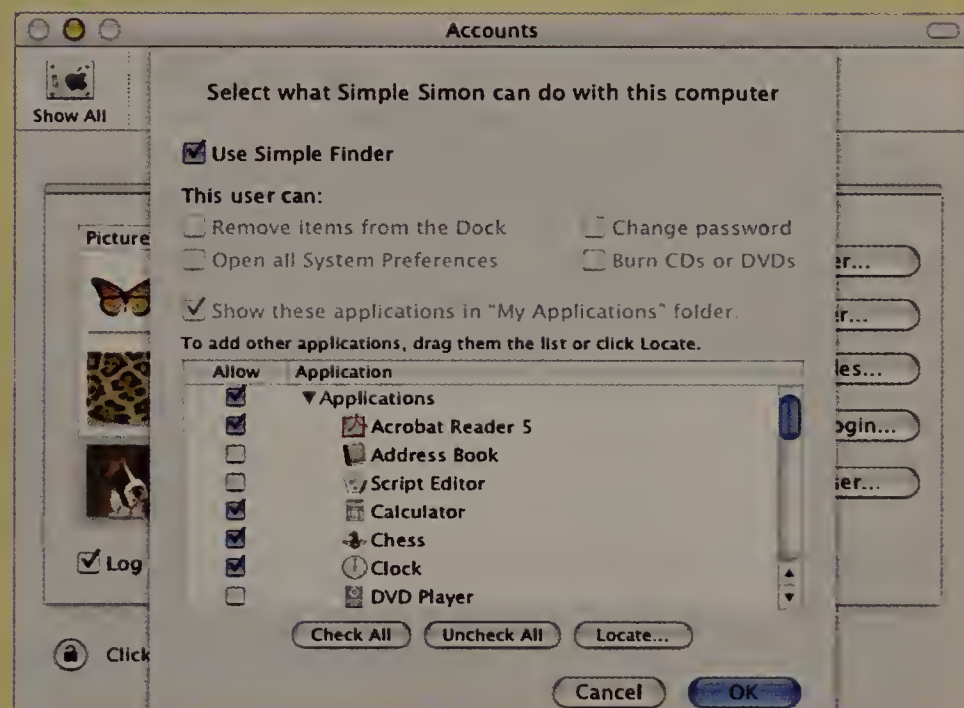
In the past, you may have gone hunting for the Key Caps program (in the Applications: Utilities folder), but you won't need it as much, thanks to OS X 10.2's Character Palette. To make this palette appear, open System Preferences, click on the International icon, click on the Input Menu tab, and select Character Palette in the list of keyboard layouts. You've just added a new icon to your menu bar.

The next time you're word processing or doing a page layout, choose Show Character Palette from this menu. The resulting window rounds up *all* the symbols from *all* your fonts at once. To find a particular symbol, click on the By Category tab and then click on the various category headings: Arrows, Stars/Asterisks, Math, and so on.

Double-click on a symbol to make it appear in your document. If you want to know what font it came from, click on the black, down-pointing triangle button to see details about it. But the Character Palette is so handy that you may never need to know (see "Symbolism").



Symbolism OS X's new Character Palette, available in every program, once you've turned on the Input menu (top), gives you direct access to every symbol in every symbol font—by category (you can look at regular fonts, too).



Simple Simon Does your Mac need protection from an inexperienced user—or does an inexperienced user need protection from your Mac? Turn on the Use Simple Finder option in the Capabilities dialog box of the Accounts panel (in System Preferences), and create an account with limited access to programs and files. You might want to make Kid Pix available to your six year old, for example, but not Disk Utility.

The Last Word

After loading Jaguar onto your computer, you may think of it as a big and intimidating beast. After all, this version of Mac OS X is filled with new features both large and small—and we've been able to touch on only some of them here. But with just a little knowledge and practice, you'll soon harness Jaguar's power—and enjoy making it purr. □

Contributing Editor DAVID POGUE (www.davidpogue.com) is the author of *Mac OS X: The Missing Manual*, second edition (O'Reilly, 2002), which covers Jaguar 10.2. He also writes the weekly technology column *State of the Art*, for the *New York Times*.



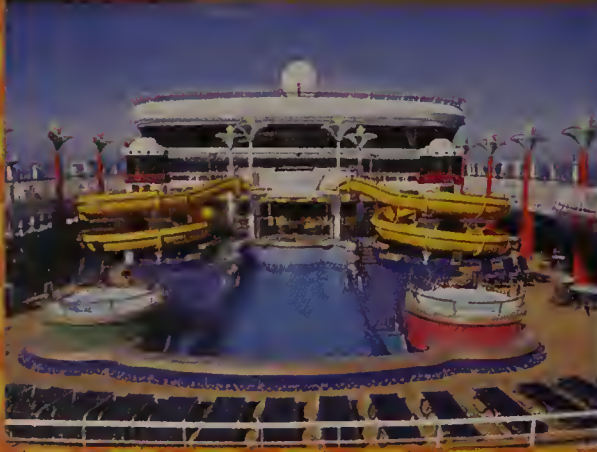
Take a Byte of the Apple in America's Paradise!

If you've ever dreamed of seeing Hawaii, cruising is a great way to go. And since you're a Mac enthusiast, MacMania II offers the perfect way to combine two American icons: Hawaii and Macintosh.

Cruising Hawaii

Hawaii isn't just one place. It's a series of islands. That's why cruising offers the best way to take in all the excitement and enchantment. Unpack only once but hit five ports of call and the MacMania frontier. Our weeklong cruise takes you to new levels of technical mastery and some of the world's most beautiful places.

- Set sail from Honolulu on the island of Oahu, the home of Pearl Harbor, the USS Arizona Memorial and Waikiki Beach.
- Explore the island of Kauai, where you can take the wheel of a 4-wheel drive, fly over Wailua Falls or cruise down the Wailua River.
- Pursue adventure on the island of Maui, as you helicopter over West Maui Mountains, bike down the slopes of Haleakala or scuba dive among coral reefs.
- Tour the "Big Island" of Hawaii, whose breathtaking natural wonders include black sand beaches, snow-capped peaks and lush valleys.



To learn more see us online at www.geekcruises.com/home/nuu2_home.html

MacMania II

June 1–8, 2003



All the while, you can acquire the digital camera and PhotoShop skills that help you capture the MacMania experience.

And your onboard conference experience is as unique as Hawaii's setting. You meet fellow Mac users, share experiences and enthusiasms, and get to know our speakers in a community. Speakers and attendees spend a week together, enjoying unparalleled opportunities to discuss, debate, and compare notes on their favorite topic — the Mac!

The MacMania cruise/conference is a fabulous vacation for body and mind. It's the perfect way to unwind as you learn new skills and share ideas with fellow Mac users. Attend seminars on digital photography, Microsoft Office, iDVD, and iMovie 2. Take the Mac Power User track and buff your skills. MacMania's wireless LAN offers a broad "comfort zone" on the ship where you can stay connected with friends and family back home. Or bring them along! There's plenty for everyone to enjoy.

Geek Cruises: Education That Takes You Places



CO-PRODUCED BY:

Macworld
THE MAC PRODUCT EXPERTS





PHOTOGRAPH BY RICHARD BAKER



Are Two Chips Better Than One? Macworld Lab Puts Them to the Test.

In August, Apple announced a new line of Power Mac G4s. There are some changes on the outside of these new Macs, and there are even more alterations inside—including more processors, different RAM, and more hard-drive space.

To find out how these new desktops measure up to previous models, we tested final versions of the dual-867MHz and dual-1GHz Power Macs (see “Dual-867MHz and Dual-1GHz Power Mac G4s” for our review) and a prototype version of the dual-1.25GHz model. Here’s a look at what Apple’s engineers did to make these Macs the fastest yet—and how well they’ve succeeded.

Meet the Macs

These new Power Macs are powered by fast processors. The \$1,699, baseline model features two 867MHz G4 processors (the single-867MHz model sold for \$2,499). The midrange, dual-1GHz Power Mac sells for \$2,499 (the previous dual-1GHz machine sold for \$2,999). And at the top of the line is a \$3,299 Power Mac with two 1.25GHz G4 chips, each of which can claim to be the fastest chip ever to inhabit a Mac.

Dip into the Chips Fundamentally, the processor at your Mac's core is its brain. A processor's speed is measured in megahertz (or gigahertz)—that is, how many millions (or billions) of cycles per second it can achieve. The more cycles it achieves per second, the faster it can work.

With two processors rather than one, these models do most other Macs one better. Mac OS X is *multithreaded*, so most of an OS X system's work can be evenly split

across both processors. OS X is also multiprocessor savvy, so as it balances work between the two processors, it's always making sure they're both operating at peak efficiency. The result is a system that's not only faster but also able to run several programs at once without blinking an eye.

Macworld Lab's tests of these systems show the difference that dual processors can make (see "True Colors"). Consider the dual-867MHz Power Mac G4 and its

MOTHERBOARD

HEAT SINK

This large piece of metal surrounds the dual processors on your motherboard and helps draw heat away from them.

RAM

With four slots, the new Power Macs can contain as much as 2GB of fast DDR RAM (only one slot is filled by default).

4× AGP

The fast AGP graphics slot comes standard with either the Nvidia GeForce4 MX or the ATI Radeon 9000 Pro AGP graphics card.

PCI

Four 64-bit, 33MHz PCI slots allow you to add PCI cards such as SCSI and digital audio or video.

56K MODEM

A built-in 56K V.92 modem allows dial-up access to the Internet.

AIRPORT

All new Macs are wired for AirPort wireless connectivity—just add an AirPort card to this slot.

ATA/100 CONNECTOR

This 100-MBps hard-drive bus can connect two hard drives, including the stock drive.

ATA/33 CONNECTOR

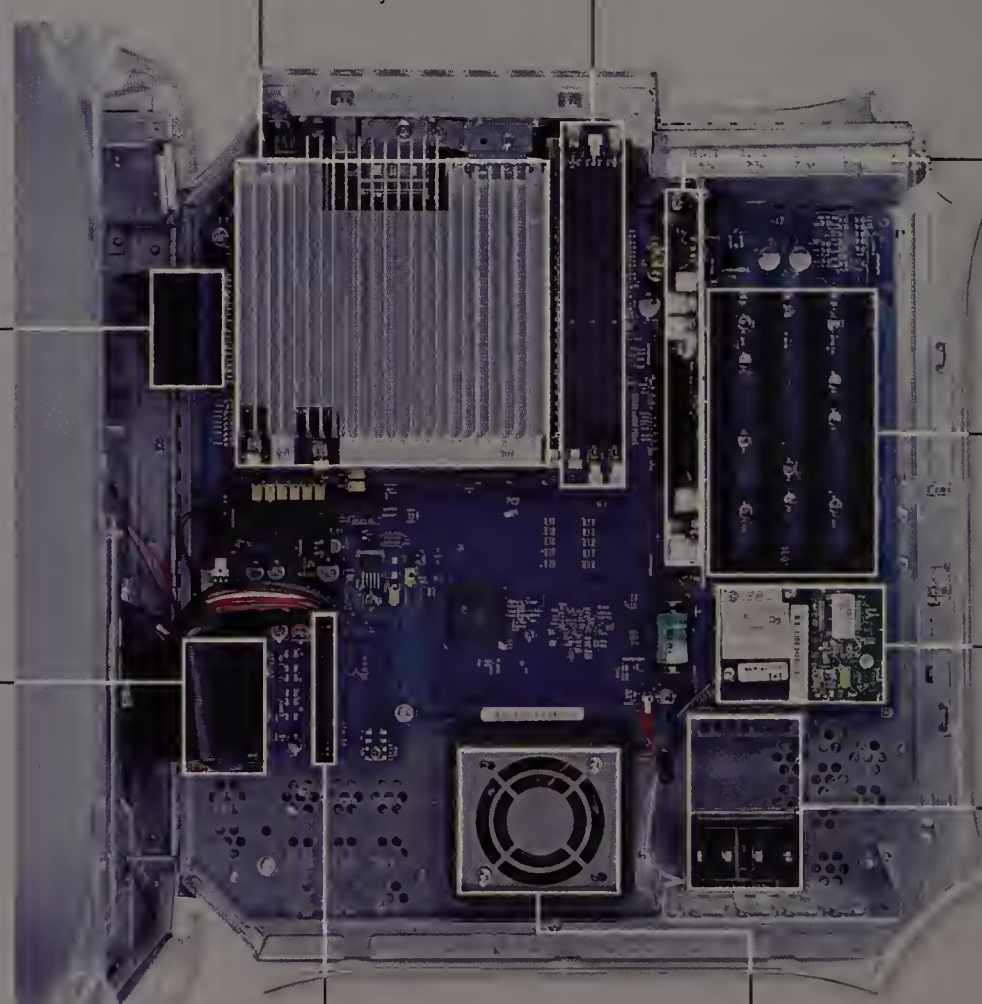
This 33-MBps bus can connect two optical drives.

ATA/66 CONNECTOR

This 66-MBps hard-drive bus can connect two additional hard drives.

FAN

This is one of several fans that keep the new Power Macs' insides cool.



single-processor predecessor: overall, the dual-processor system's Speedmark score was 8 percent better, and in our processor-hungry 3-D-rendering test, it was nearly twice as fast.

Speed Boosters

While the processor is the beginning of any discussion about a computer's speed, it's far from the last word on the subject. The Mac is made up of connected systems running at different speeds. How well

they work together can have a major impact on performance.

Processor Caches To make processors work as efficiently as possible, engineers include *caches* of special RAM connected directly to the processor. These caches are full of commonly used commands and data, and the processor can communicate with them much faster than it can communicate with your Mac's main memory.

The Power Mac's processors already have 256K of built-in cache,

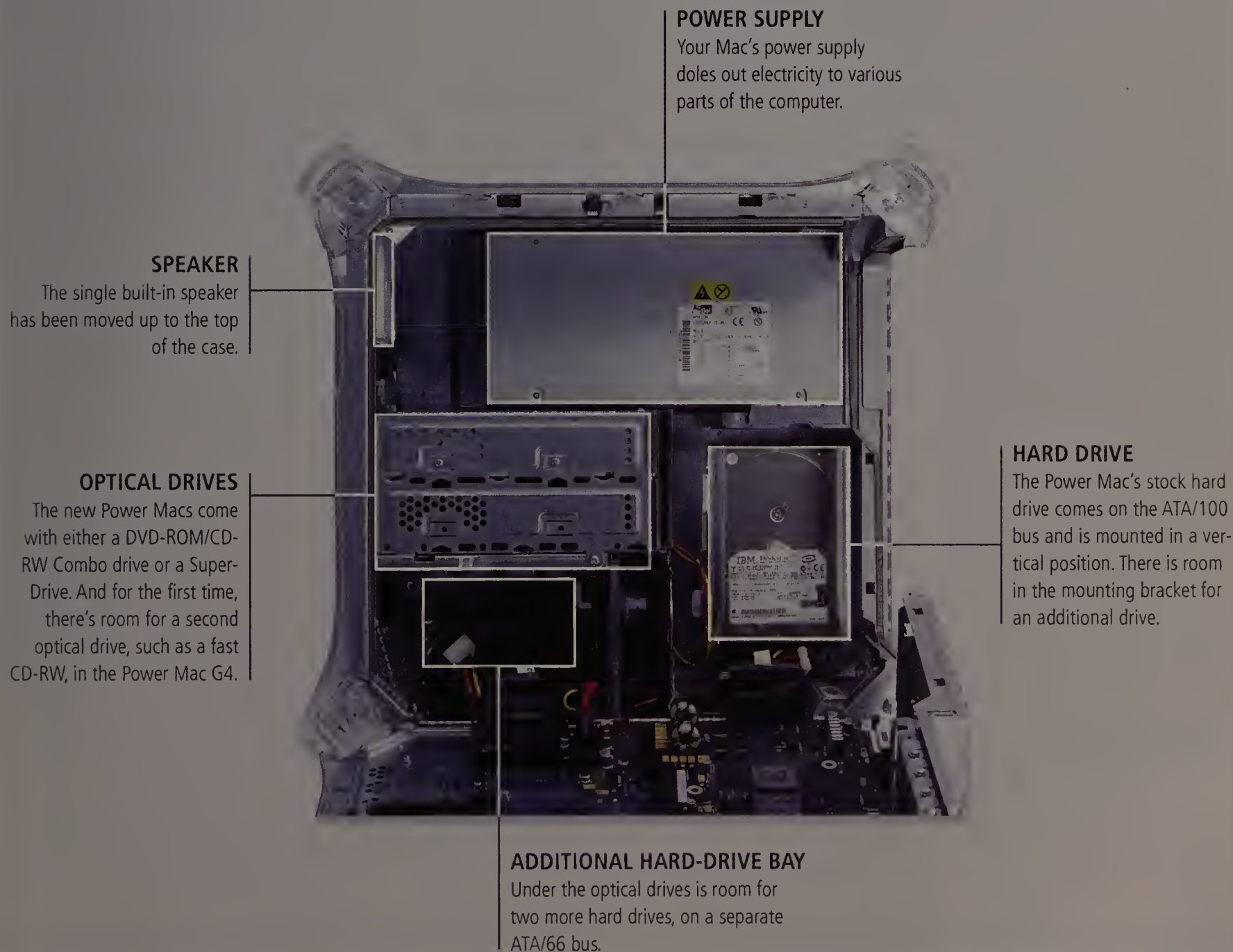
known as *Level 2 (L2) cache*. L2 cache runs at the same speed as the processor; they are the fastest two components in the Power Mac. To aid performance even more, many high-end systems also come with additional cache, called *Level 3 (L3) cache*, which runs a bit slower than the processor (in the case of these Power Macs, at one-fourth or one-fifth of its speed) but still provides a major speed boost.

In a first for Power Macs, every one of the new G4 systems has

APPLE'S
AL-G4 M
S NEW
DUAL-G
APPLE'S
G4 MAC
LE'S NE
AL-G4 I
APPLE'S
L-G4 M
DDLE'S A

>>

INSIDE CASE



POWER SUPPLY

Your Mac's power supply doles out electricity to various parts of the computer.

SPEAKER

The single built-in speaker has been moved up to the top of the case.

OPTICAL DRIVES

The new Power Macs come with either a DVD-ROM/CD-RW Combo drive or a SuperDrive. And for the first time, there's room for a second optical drive, such as a fast CD-RW, in the Power Mac G4.

HARD DRIVE

The Power Mac's stock hard drive comes on the ATA/100 bus and is mounted in a vertical position. There is room in the mounting bracket for an additional drive.

ADDITIONAL HARD-DRIVE BAY

Under the optical drives is room for two more hard drives, on a separate ATA/66 bus.

DUAL-867MHZ AND DUAL-1GHZ

NEW G4S PROVIDE GOOD VALUE AND SLIGHTLY BETTER PERFORMANCE

Since its introduction in February 2000, the Power Mac G4 has been a feather in Apple's cap. The G4 has what many users look for in a professional desktop system, including a powerful chip and many expansion options.

In this, the third major revision to the Power Mac G4, Apple has instituted several changes to the case design and the computer architecture, making Power Macs even more attractive: dual processors standard across the line; more room for RAM, hard drives, and optical drives; and better graphics cards—to name a few.

Wonder Twins

The biggest change to the Power Mac lineup is that all the new models have two processors—in the past, dual processors have usually been reserved for the top-of-the-line Power Mac model. We reviewed two configurations: the dual-867MHz and the dual-1GHz G4; each processor in these Power Macs has 1MB of L3 cache. Due to Mac OS X's support for multiple processors, these machines are faster in many areas than their single-processor predecessors.

In our Speedmark tests (see "True Colors"), the dual-867MHz model's overall score was 11 points higher than the single-867MHz model's, and many individual scores were very close. In our application tests, the dual-867MHz model was much faster than the single-867MHz machine—generally by 20 to 40 percent.

Comparing the new dual-1GHz model with the old was also interesting, as they performed at roughly the same speed. Where they differed, it was only by a few seconds. In our After Effects test, the new model was 11 percent faster; in our Photoshop test, it was slightly slower.

On the Case

The two processors—along with a bunch of other stuff—are packed into a new case. For one thing, you'll notice four heat vents on the bottom front of the case and dozens more on the back. The case is grayer (and less silver) than the previous revision, and the speaker has been moved from the bottom to the top. The most striking difference is the drive-bay doors' polished metal, as reflective as the back of an iPod. Above them is the power button (also shiny metal), but no reset or programmer's button. (To reset, you have to hold down the power button until

the machine powers down and then press it again to restart.)

The ports are more tightly clustered now, and they include two 400-Mbps FireWire ports; two 12-Mbps USB 1.1 ports; a Gigabit Ethernet port; a 56K V.92 modem port; and four 64-bit, 33MHz PCI slots.

One feature whose absence has caused a stir among buyers of recent Power Mac revisions has returned: on the back of the new Power Macs is an analog audio-in port, now with a higher, 24-bit resolution, as well as an additional audio-out port (useful for connecting your Mac to a stereo system) and a port for Apple's Pro Speakers (a \$59 option). Apple has also added a headphone jack to the front of the tower, for easy access.

On the inside, Apple switched the position of the PCI and RAM slots, which made it more difficult for us to install RAM modules. The RAM slots are now sandwiched between the video card and the giant heat sink—both are so tall that sticking our fingers in between them was a tricky task.



Driving Lessons

Unlike recent Macs, the new Power Macs have room for two optical drives—so you can now have a SuperDrive or Combo drive and a fast, dedicated, internal CD-RW drive. This is welcome news, since the SuperDrive takes more than nine minutes to complete a 74-minute CD—the fastest CD burners (at 48x speed) can do the same task in about one and a half minutes. Internal IDE CD burners are also less expensive than their external FireWire counterparts. Apple can customize your Power Mac with two optical drives, but otherwise, it sells only the SuperDrive and Combo drive—which burns at 16x. Installing your own drive, however, is a relatively painless process.

Installing a game from CD was quite slow on the new dual-1GHz Power Mac, taking 45 percent longer than the same task on the dual-867MHz model—most likely because the SuperDrive reads CDs at 24x, as opposed to 32x for the Combo drive.

Dual-Processor Duo

COMPANY	PRODUCT	MOUSE RATING	PRICE	CONTACT	SYSTEM BUS	OPTICAL DRIVE	RAM TYPE/ MAX RAM	HARD DRIVE	GRAPHICS CARD/RAM	PROS	CONS
Apple Computer	Dual-867MHz Power Mac G4	★★★★	\$1,699	800/538-9696, www.apple.com	133MHz	Combo drive	PC2100 DDR/256MB/2GB	60GB	Nvidia GeForce4 MX/32MB	Dual processors in entry-level machine; more expansion than previous models; DDR RAM.	Slower bus/RAM speed; no SuperDrive.
Apple Computer	Dual-1GHz Power Mac G4	★★★★	\$2,499	800/538-9696, www.apple.com	167MHz	SuperDrive	PC2700 DDR/256MB/2GB	80GB	ATI Radeon 9000 Pro/64MB	More expansion than previous models; DDR RAM.	No significant performance increase over last dual-1GHz.

POWER MAC G4S▶

True Colors



	Speedmark 3.2	Adobe Photoshop 7	iMovie 2.1.2	iTunes 3	Quake III v1.30b5	Cinema 4D XL 7.303	Adobe After Effects 5.5
	OVERALL SCORE	SUITE	RENDER	MP3 ENCODE	FRAME RATE	RENDER	RENDER
Apple Power Mac G4/1.25GHz DP (DDR)*	185	0:31	0:33	0:26	131.5	3:01	6:07
Apple Power Mac G4/1GHz DP (DDR)	163	0:38	0:40	0:32	120.8	3:42	7:18
Apple Power Mac G4/867 DP (DDR)	152	0:45	0:46	0:37	92.8	4:19	8:21
Apple Power Mac G4/1GHz DP	166	0:39	0:38	0:32	98.0	3:43	8:07
Apple Power Mac G4/933	156	0:54	0:43	0:43	82.0	7:18	9:57
Apple Power Mac G4/867	141	0:59	0:47	0:48	50.7	7:53	10:22
	>Better	<Better	<Better	<Better	>Better	<Better	<Better

BEST RESULTS IN BOLD. REFERENCE SYSTEMS IN *ITALICS*. * Preproduction model. Results of shipping model may vary.

Speedmark 3.2 scores are relative to those of a 700MHz eMac, which is assigned a score of 100. Photoshop, iMovie, iTunes, Cinema 4D XL, and After Effects scores are in minutes:seconds. Quake III scores are in frames per second. We tested each system with Mac OS X 10.2 installed and 256MB of RAM. We set displays to 1,024-by-768-pixel resolution and 24-bit color. For the Photoshop Suite test, the systems were upgraded to 512MB of RAM; the test is a set of ten scripted tasks using a 50MB file. Photoshop's memory was set to 100 percent and History was set to Minimum. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long, converting it from the hard drive using iTunes' Better Quality setting. We tested Quake III at a resolution of 1,024 by 768 pixels with Graphics set to Normal. Our single After Effects composition had multiple layers. We made transfer-mode changes and applied several dynamic geometric changes to each layer. We performed final renderings at maximum quality. For more information on Speedmark 3.2, visit www.macworld.com/speedmark.—MACWORLD LAB TESTING BY ULYSIS BRAVO AND JAMES GALBRAITH

More Hard-Drive Space When it comes to hard-drive space, this cavernous Power Mac is also better prepared than its predecessor. There is now room for as many as four 3.5-inch ATA hard drives, and with 120GB ATA hard drives currently available, that provides for nearly half a terabyte of fast (7,200-rpm) internal storage. The previous model had room for only three drives, and without an additional ATA PCI card, you could accommodate three only if you didn't have a Zip or tape drive connected internally.

Apple has introduced some clever new design tactics for hard drives as well. Hard-drive brackets no longer use screws to connect to the case—they snap into place and are released with a small clasp. This makes installing new drives a little faster and easier. Also, in order to accommodate four drives, the two drives attached to the ATA/100 are mounted vertically instead of in the more usual horizontal position.

Pretty Pictures

All new Power Macs have the same 4× AGP dedicated graphics slot as before, but Apple has stepped up what's in that slot. New Power Macs include either the 32MB Nvidia GeForce4 MX (on the dual-867MHz) or the 64MB ATI Radeon 9000 Pro (on the dual-1GHz). Both standard graphics cards can power two displays—each has one output for Apple's proprietary ADC connection and one for the industry-standard DVI connection, both for connecting digital LCD displays. Each output supports digital resolutions of 1,920 by 1,200 pixels and analog resolutions of 1,600 by 1,200 pixels. (Apple includes a DVI-to-VGA adapter so you can still connect a VGA CRT monitor, and in case you want to use two Apple ADC displays at once—both cards can drive two 23-inch Apple Cinema Displays—Apple sells a DVI-to-ADC adapter for \$149.)

The dual-867MHz with the GeForce4 MX put out 92.8 frames per second at 1,024-by-768-pixel resolution—83 percent more than the single-867MHz with the GeForce2 MX. The dual-1GHz with the Radeon 9000 Pro managed 120.8 frames per sec-

ond, or almost 25 percent more than the previous dual-1GHz model (the old dual-1GHz's GeForce4 MX had the same 64MB of DDR RAM as the new Radeon 9000 Pro).

Price

These two new Power Macs cost slightly more than their Quicksilver counterparts at the entry-level and midlevel positions—\$100 and \$200, respectively. However, what you get for your money is in most cases a significant improvement. Both models include two processors instead of one, and those processors are faster. The dual-867MHz has 1MB of L3 cache per chip, whereas the 800MHz G4 had no L3 cache. However, this dual-1GHz model has half its predecessor's cache: 1MB per chip. The dual-867MHz also has a Combo drive instead of a CD-RW drive, a larger hard drive, and a better graphics card. The new dual-1GHz has a faster system bus, bigger hard drive, and better graphics card.

Both systems now use DDR SDRAM, which is faster but costs about twice as much as the same amount of PC133 RAM (at press time)—something to remember, since you can't use your old Mac's RAM in the new Power Macs. Both also ship with OS X 10.2 installed as the default operating system and include OS 9.2.2.

Macworld's Buying Advice

The new dual-processor 867MHz and 1GHz Power Macs are a good value—especially for people upgrading from older (Sawtooth) G4s. For a little more money than corresponding previous models, you get two G4 processors, more expansion, and better graphics support. For owners of top-of-the-line Quicksilver Power Mac G4s, however, these two new models don't offer substantial benefits. If you want the fastest Mac on the planet, wait to see what the dual-1.25GHz model has to offer. If the final edition matches the performance of the prototype we tested, it will be worth the wait.

built-in L3 cache. The new dual-867MHz and dual-1GHz Power Mac configurations have 1MB of L3 cache per processor; the dual-1.25GHz model has 2MB per processor. L3 cache can have a major impact on performance. At first it might seem perplexing that in most of our tests, the new dual-1GHz Power Mac was slightly slower than the previous dual-1GHz Power Mac—but there's an important difference between the two systems: the older model has 2MB of L3 cache per processor; the new model has only half that and suffers for it.

System Bus Your Mac's system bus, also known as the frontside bus, is an important factor in your Mac's speed, since it's the pathway through which data flows as it travels back and forth between the processor and your Mac's main memory.

The dual-867MHz Power Mac has the same 133MHz bus as previous Power Macs. But the dual-1GHz and dual-1.25GHz models have a 167MHz system bus, so about 1.3GB of data per second can flow along the conduit between the RAM and the processor.

RAM All previous Power Mac G4 models have used some form of standard SDRAM (synchronous dynamic random access memory). In the recent Quicksilver Power Mac G4s, speeds topped out at 133MHz. (The speed of your RAM is based on the speed of the system bus—for example, a 133MHz system bus requires 133MHz of RAM.) Apple's first foray into newer RAM technology came with the Xserve, which features the same RAM style that appears in these new Power Macs: Double Data Rate (DDR) SDRAM.

This new RAM is also based on the speed of the system bus, but it

can send and receive data twice during one tick of the system bus's clock. This effectively doubles the throughput of your Mac's RAM—hence the name Double Data Rate.

The dual-867MHz Power Mac, with the same 133MHz system bus as the previous G4 models, uses 266MHz DDR SDRAM (also called PC2100). And the 1GHz and 1.25GHz models, with 167MHz buses, use 333MHz DDR SDRAM (also called PC2700). The names PC2100 and PC2700 refer to how fast data can be transmitted to or from RAM: 2.1 GBps (2,100 MBps) and 2.7 GBps (2,700 MBps), respectively.

To understand how that bandwidth can be doled out, think of your Mac's RAM as a glass of water. Put one straw in the glass, and you can drink a certain amount of water per second. But if other people put straws in as well, the amount of

BACK

DISPLAY CONNECTORS

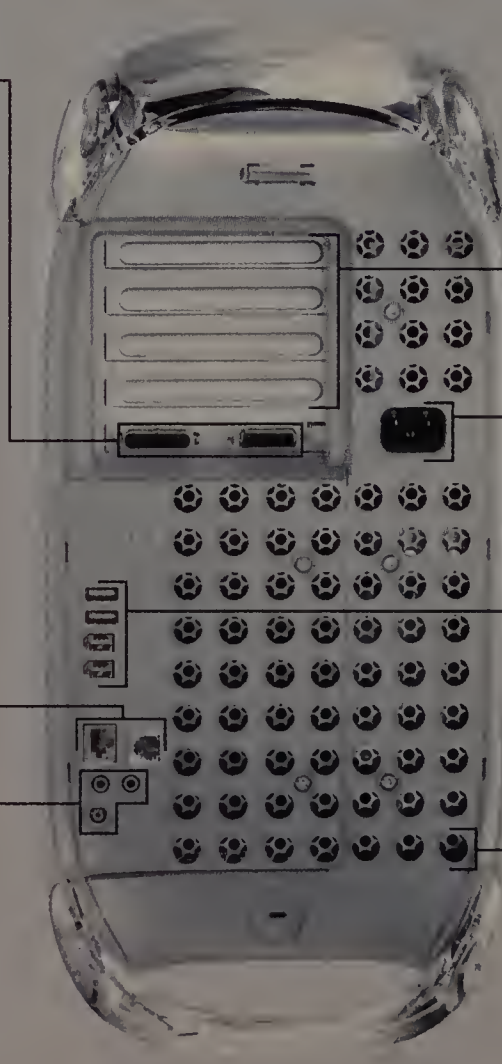
Now every Power Mac model can easily connect to two displays—one ADC and one DVI flat panel. Apple includes a DVI-to-VGA adapter for connecting a CRT monitor, and you can purchase a DVI-to-ADC adapter to connect two Apple flat-panel displays at once. Both standard graphics cards can support two 23-inch Apple Cinema Displays.

GIGABIT ETHERNET AND 56K MODEM

Gigabit Ethernet is the fastest networking available on any Mac. Its throughput of as much as one gigabit per second is ten times that of standard 100BaseT. OS X 10.2 supports the V.92 modem standard, making the included 56K modem a little more bearable: V.92 enables functions such as *modem on hold*, which puts your internal modem on hold when you get a phone call.

AUDIO-IN AND AUDIO-OUT PORTS, DIGITAL-SPEAKER PORT

The improved audio-in port allows you to record audio at 24-bit stereo, which is better than any previous Mac's audio-input support. The audio-out port provides a way to send audio to a tape deck or amplifier. The digital-speaker minijack connects to Apple Pro Speakers.



PCI SLOTS

There are four 64-bit, 33MHz PCI slots, and you can load them with cards for a variety of tasks, including SCSI connectivity, video capture, and music production. By default, all four slots are empty, but Apple can customize your Power Mac with an Ultra SCSI card and cable or with a dual-channel Ultra160 SCSI card and fast internal SCSI drives.

POWER

2 FIREWIRE AND 2 USB PORTS

The G4 FireWire ports—used for connecting devices such as digital camcorders and external hard drives and CD-RW drives—have 400 Mbps of bandwidth. The USB 1.1 ports—used for connecting devices such as keyboards, mice, and digital cameras—have 12 Mbps.

HEAT VENTS

The G4s' dual processors and other fast components can heat things up pretty quickly. To prevent that heat from damaging your Mac, Apple riddled the case with heat vents.

liquid you can collectively drink per second is much greater.

In the standard Mac architecture, most things communicate with the RAM via the system bus—all drinking out of one narrow straw. If the processor uses all the bandwidth of the system bus, there's nothing left over for the hard drives or graphics system. But with these new Power Macs, other parts of the system (such as hard drives and the graphics card) have extra bandwidth—basically, their own straws—for communicating directly with the RAM (known as *direct memory access*), without regard to what the processor is doing.

So even though the high-end Power Macs' 167MHz system bus can drink only at 1.3 GBps, there are additional straws available for other parts of the system. This should be most noticeable when your Mac uses many subsystems simultaneously—capturing high-definition video or recording and playing back multitrack audio, for example.

Speed isn't the only RAM-related change in these new Power Macs. Apple has also added a fourth RAM slot, allowing you to install as much as 2GB of RAM (the previous limit was 1.5GB), with four 512MB chips.

Storage Apple has designed the new Power Macs with room for two optical drives. Previously, you could have one optical drive and another, smaller drive such as a Zip or tape drive.

There are also two discrete ATA drive buses on the motherboard, giving you built-in support for four internal drives, in addition to the two optical drives, all without any ATA add-on cards.

The primary hard drive is located on a fast ATA/100 bus with a maximum throughput of 100 MBps. A second ATA/66 bus is available, and Apple recommends that when you add a second drive, you add it to this second bus. Since each bus can transmit only a certain amount of data at one time, it's best to balance the number of drives on each bus, allowing each drive to sip a full

straw's worth of its connection to your RAM (rather than having them fight over access to a single straw).

Video Cards Your Mac's speed can be dramatically affected by the power of its video card—particularly when you're playing games. (OS X 10.2's Quartz Extreme technology, which offloads many screen-drawing tasks to video cards, makes those cards even more important.) These new Power Macs clearly excel in this area, as our Quake III frame-rate tests showed. The dual-867MHz model, powered by an Nvidia GeForce4 MX card, had a frame rate nearly twice that of its single-867MHz predecessor. And the dual-1GHz and preproduction dual-1.25GHz models, each outfitted with an ATI Radeon 9000 Pro card, had far and away the best frame rates of any system we've ever tested.

Putting It to the Test

In our tests, the new dual-1GHz Power Mac performed roughly the same as the dual-1GHz model that came before it. Although the new model has a faster system bus, it also has half the L3 cache per processor—a very important factor in a system's speed. This is evidence that the new architecture, with its faster system bus, is indeed an improvement, since it can overcome the shortcomings of less L3 cache and achieve similar (and at times, better) performance. As faster chips become available and Apple is able to increase the system-bus speed, Mac users should be able to reap even more of this new architecture's benefits.

We tested this hypothesis with a preproduction model of the dual-1.25GHz Power Mac. With faster chips and twice the L3 cache of the other models, it performed as expected; that is, it was the fastest of the new Power Macs. It matched or beat—by as much as 19 percent—the new dual-1GHz Power Mac in most of our tests. (Processors that were 25 percent faster did not equate to 25 percent faster performance overall; however, we ran our Speedmark tests on all machines

with 256MB of RAM, and the high-end configuration will ship with 512MB.)

There were notable exceptions: installing a game from CD (the dual-1.25GHz model was faster than the dual-1GHz model but much slower than the dual-867MHz model, which has a faster optical drive) and start-up times (the new Power Macs took longer than any of our reference systems—they have several fans that seem to turn on at start-up, delaying the process).

Our After Effects test brought one oddity to our attention. The first time we ran the test, the new dual-1GHz model was more than a minute faster than the older dual-1GHz configuration. But when we switched the hard drives between machines, the older Mac (with the newer drive) was a minute faster—so the drive in the newer model seems to be faster.

Our tests, which involve common operating-system tasks and some higher-end applications, don't max out system performance. If your work involves high-end tasks (capturing video via PCI, the hard drive, and graphics systems, in addition to the processor, for example), you may see even greater speed gains from the top-of-the-line model—and if the fastest performance numbers are what you're after, the dual-1.25GHz model looks very promising.

The Last Word

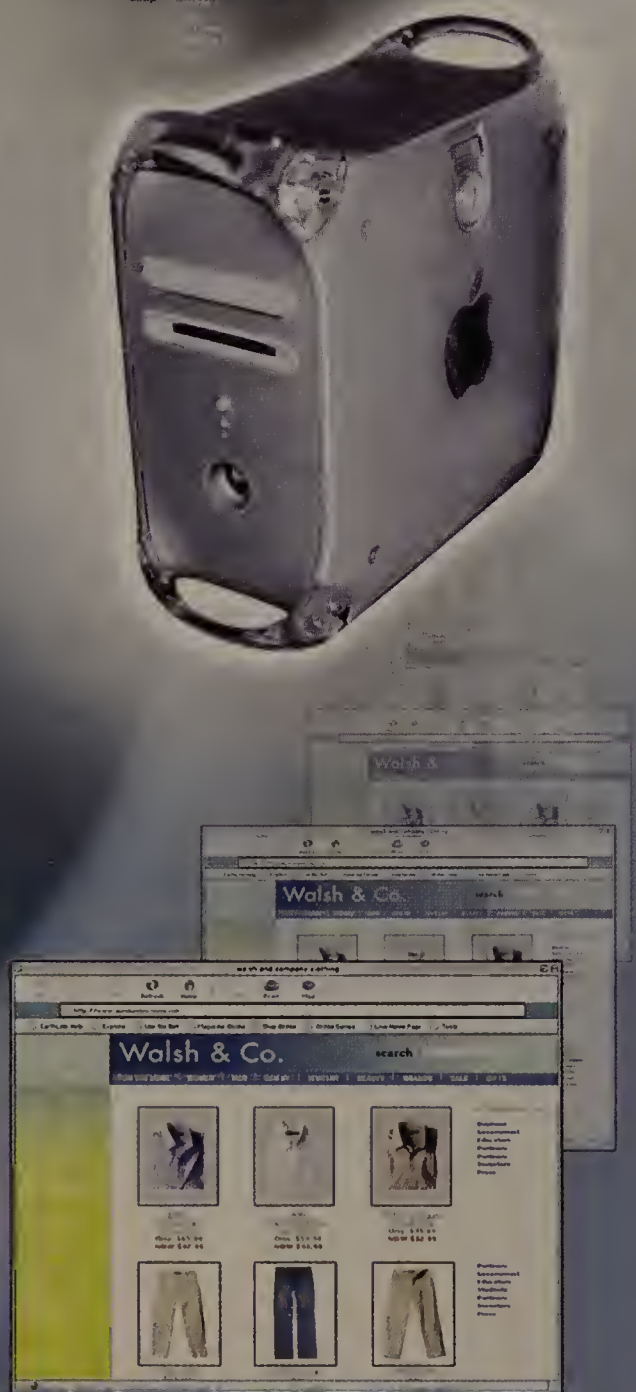
By redesigning the Power Mac's guts, Apple has demonstrated its commitment to getting the most out of these systems, regardless of the G4 processors' available speeds. With two G4 processors in every model, larger hard drives, more-powerful graphics cards, room for two optical drives, speedier RAM, and (in two of three models) faster system buses, the new Power Macs are worthy additions to Apple's hardware lineup. ■

Associate Editor JONATHAN SEFF specializes in system hardware and multimedia, and he's in the market for a new Mac to replace his Power Mac G4/450.

APPLE'S
AL-G4 M
S NEW
DUAL-G
APPLE'S
G4 MAC
LE'S NE
IAL-G4 I
APPLE'S
L-G4 M
PPLE'S M
-G4 MA
APPLE'S
AL-G4 M
S NEW
DUAL-G
APPLE'S
G4 MAC
LE'S NE
IAL-G4 I
APPLE'S
L-G4 M
PPLE'S M
-G4 MA
APPLE'S
AL-G4 M
S NEW
DUAL-G
APPLE'S
G4 MAC
LE'S NE
IAL-G4 I
APPLE'S
L-G4 M
PPLE'S M
-G4 MA

SERVE IT UP

Build Dynamic Web Sites without Leaving Your Mac



Sports scores displayed in real time, auctions that run themselves, catalog prices updating instantaneously across an entire Web site—none of this dynamic interactivity is possible with plain-vanilla HTML. Today's best Web sites are full-blown applications built on top of sophisticated databases.

But until recently, Mac users were at a disadvantage when it came to building Web applications such as these. The most popular dynamic Web tools didn't run on the Mac, so we had to set up a second computer to use them. Meanwhile, the tools that did run on the Mac were expensive and not as widely supported as those that ran on powerful Unix servers.

Well, that's no longer the case. With the release of OS X, Mac users can at last build, test, and deploy dynamic Web sites—all from a single machine. Now, the same database tools used to build world-class

Internet sites such as those from NASA, MP3.com, and Yahoo Finance are available for free to OS X users. As a result, Mac users no longer have to take a backseat to Unix folks when it comes to developing dynamic Web sites.

In this article, we'll show you how to get up and running with one of the Web-publishing world's favorite combinations: the Apache Web server, MySQL database server, and PHP scripting language. These three tools work in concert to let Mac-based Web developers create dynamic sites with the same tools that Unix pros use. In fact, with a world-class server OS at its foundation, the Mac can be more than just a development machine—it's ready to be a live hosting platform.

To follow these instructions, you'll need OS X 10.2. (For details on setting up this environment with earlier versions of OS X, go to www.macworld.com/2002/11/features/database.html.)

The Tools

Whether you're building the next eBay or creating a simple contact database that employees can access over the Web, you'll need to enable three major components on your OS X machine before you can add dynamic content to your pages.

Apache To deploy any Web site, you need a Web server to process page requests from users and return the appropriate files. And it just so happens that the world's most popular Web server is built into OS X. The Apache Web server is available for nearly every platform under the sun. Its fast performance, flexibility, and low price (it's free) make it a strong choice for serving sites of any size.

MySQL You'll also need a database server, which hosts data sets and responds to queries from other programs (such as scripted Web pages).

MySQL is one of the most popular open-source database servers available. A MySQL server can host a collection of databases—each of which contains a set of related tables filled with data. (For a discussion of how MySQL terms relate to those of FileMaker Pro, see "Making the Leap.") Because it's compact, very fast, and compatible with the industry-standard Structured Query Language, MySQL is particularly well suited to Web use—and like Apache, MySQL is free.

PHP Your Apache and MySQL servers alone won't generate dynamic content. Because HTML is a markup language, not a programming language, it has no direct way of communicating with databases. This means you need a "diplomat"—a scripting language that can communicate with both servers to fuse static HTML templates and data from your database records. For this component, we'll turn to PHP, a scripting language included with OS X.

PHP lets developers add interactivity to Web pages by interspersing programming instructions with HTML. When a user requests a Web page that

includes PHP code, the Web server's PHP module executes that code and inserts the results into the HTML page that's returned to the user. As a result, if you view the source of any PHP page on the Internet, you won't see any PHP code—it was all executed and converted into plain text or HTML *before* it was sent to you.

And you no longer have to be a programming wizard to add PHP scripts to your Web pages. Both Macromedia Dreamweaver MX (\$399; 800/470-7211, www.macromedia.com) and Adobe GoLive 6 (\$399; 800/833-6687, www.adobe.com) now come with PHP support built in.

Putting It Together Apache, MySQL, and PHP (often referred to as *AMP* when used in combination) are each independent packages—Apache can work with other scripting languages, just as PHP can work with other databases. However, there are advantages to using them together. Because each is open source, their development teams work closely to make sure the three are tightly integrated. For example, PHP has more built-in functions for communicating with MySQL than with any other type of database.

Used in conjunction, Apache, MySQL, and PHP seamlessly collaborate to create dynamically generated Web pages (see "Behind the Scenes"). When Apache receives a request for a new Web page, it sends any included PHP code to the PHP interpreter for processing. If the PHP code includes database requests, the PHP module passes those on to the MySQL server (which typically runs on the same computer). Once the PHP module gets the results back from MySQL, it inserts them into the waiting HTML template and returns the finished document to Apache, which in turn hands it back to the client.

What You'll Need Building a basic system like the one we just described isn't difficult. Since OS X comes with the Apache Web server and PHP support, you're already a portion of the way there. And although MySQL isn't included with your Mac, it can be installed in minutes (though you will need some technical know-how).

For the sake of this article, we'll assume that you already have OS X 10.2, basic HTML skills, and a text-based editor such as Bare Bones Software's BBEdit (\$119; 781/687-0700, www.barebones.com). You can also use the code mode built into Dreamweaver or GoLive. You'll use OS X's Terminal application to initially set up and configure the software, but don't worry—you won't need it to build or manage your databases.

If you've purchased Adobe GoLive 6, you can skip our instructions for installing your AMP component. GoLive 6 comes with a preconfigured AMP setup—just run the installers (located on the CD pasted to the back of the program's Web Workgroup Server User Guide) and follow the Read Me file's instructions. Of course, if you don't have GoLive 6, you can have the exact same setup for free—you'll just have to install a bit of the plumbing yourself.

STEP 1: SET UP A WEB SERVER

Although Apple builds Apache and support for PHP into OS X, it doesn't actually turn these features on. You'll have to do that part yourself. Here's how:

Turn PHP Support On To activate Apache's PHP module, you'll first need to modify the Apache configuration file. Since the configuration file is hidden from the Finder, you'll have to make a trip to the command line.

Open Terminal (Applications: Utilities: Terminal). Before you make any changes, you'll want to create a backup of your Apache configuration file—just in case something goes wrong. To do this, type the following commands into the Terminal window:

```
cd /etc/httpd
sudo cp httpd.conf httpd.conf.orig
```

Enter your administrator password when prompted, and then type `sudo pico httpd.conf`.

This command opens your Apache configuration file in `pico`, a Unix text editor. In `pico`, press control-W to open the Find command, and then type `php`. When you hit the return key, your cursor should land on the line `#LoadModule php4_module libexec/httpd/libphp4.so`. Using the left-arrow key to move your cursor, remove the `#` character at the beginning of this line.

Press control-W again. This time, type the string `mod_php4.c` and press return. Remove the `#` character from the beginning of this line as well.

Press control-W a third time and search for the string `x-tar`. When you land on it, move your cursor to the end of the line, press return, and then add the line `AddType application/x-httpd-php.php`.

Once you've made these three changes, save the file by pressing control-O and then the return key. Press control-X to exit `pico`.

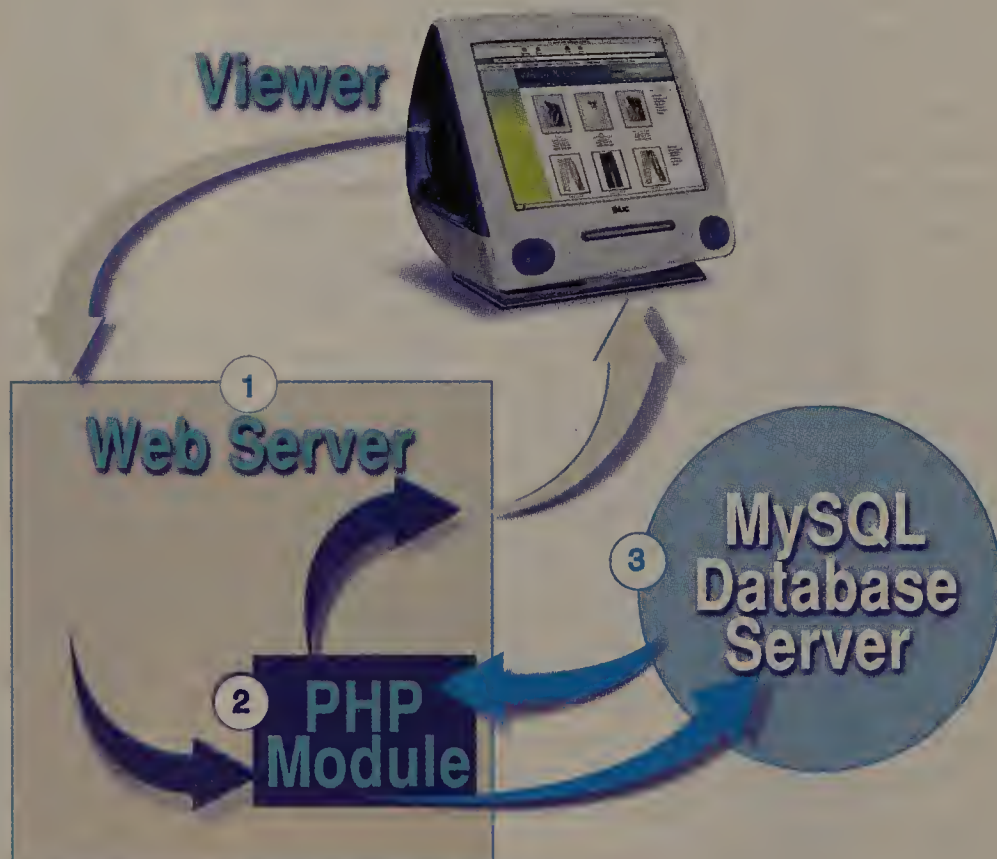
Apache should now automatically load the PHP module on start-up. When the Web server encounters pages ending in `.php`, it'll send them to the PHP module for interpretation.

Start Apache With PHP enabled, you're ready to flip the switch on your Web server. Open your System Preferences and select Sharing. Click on the Services tab, and select the Personal Sharing option. Click on Start. (If Web sharing was already on, you'll need to turn it off and then back on to activate the changes you've made.)

Testing To find out whether the PHP module has been correctly activated, open your favorite text editor and create a new document. (If you're using Apple's TextEdit, make sure you've turned off the program's Rich Text features, in Preferences, first.) In your blank document, type `<? phpinfo(); ?>`. Save the file as `test.php` in the Sites folder in your user's folder.

Open your Web browser, and type in the address `http://localhost/~username/test.php`, where `username` is your short name on the OS X machine. (Because PHP is a server-parsed language, nothing will happen if you open a PHP file in your Web browser via the File menu or by double-clicking. To execute PHP pages, you *must* access them through a PHP-enabled Web server.)

Your browser should display tables packed with arcane data about your new PHP environment. If you see only one line of raw PHP code, repeat this step.



Behind the Scenes Since HTML can't speak to databases, a programming language such as PHP must bridge the gap between plain-vanilla HTML and live data sets. In a standard HTML request, the Web server ① simply sends the requested file to the client. If the page includes PHP code, that code is passed to the PHP module ②—which runs within Apache—for execution. If the PHP code includes MySQL queries, the PHP module passes those requests to the database server ③ for processing. Results of the database query are returned to the PHP module for inclusion in the results; the PHP module then integrates them and passes text or HTML back upstream to the client.

STEP 2: SET UP A DATABASE SERVER

With your PHP-enabled Web server up and running, you're ready to install a MySQL database server. There are a number of MySQL installers for OS X floating around on the Web; Marc Liyanage offers the easiest one (www.entropy.ch/software/macosx/mysql/). Download the 3.2X-jaguar version (unless 4.0 is out of beta by the time you read this). While you're at Liyanage's site, download the `mysql-startupitem` installer as well—you'll need it later.

Install MySQL To install the database server, unpack the `mysql-3.2X-jaguar.pkg.tar.gz` on your desktop, and then double-click on the resulting `.pkg` file. Follow the installation instructions.

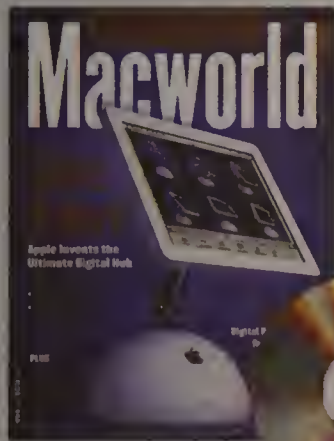
Once installed, the database needs to be initialized and launched. This requires another trip to Terminal. Open a Terminal window and type:

SUBSCRIBER SAVINGS CARD

GET UP TO

74%
OFF

PLUS A FREE CD-ROM!



BONUS:
Clip art
images,
digital stock
photos and
more!



ANNUAL COVER PRICE	YOUR ONE-YEAR RATE	BONUS STATUS
\$95.88	\$34.97	FREE CD-ROM

As a new subscriber, you are entitled to a reduced rate on *Macworld* – 74% off the cover price. BONUS: the *Macworld Clip Art CD-ROM* – FREE with your paid subscription.

☐ 1 year (12 issues) just \$34.97. YOU SAVE 64%.

☐ 2 years (24 issues) just \$49.97. YOU SAVE 74%.

Name (please print)

Address

City

State

Zip

E-mail

☐ Check box if you would like to receive periodic e-mail offers from carefully screened providers of quality goods and services.

☐ Payment enclosed. ☐ Bill me later.

Annual newsstand price is \$95.88. Non-U.S. orders, please add US\$25 postage per year; in Canada add US\$10, GST included. Allow 3-6 weeks for delivery. This offer does not include monthly CD-ROMs.

J2BS1AB10

Check us out on the Web —
<http://www.macworld.com>



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL

PERMIT NO. 112

BOONE IA

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld®

PO BOX 37778
BOONE IA 50037-2778



Making the Leap

```
cd /usr/local/mysql
sudo ./scripts/mysql_install_db
```

Enter your system admin password. (If Terminal complains that it can't resolve your host name—this can happen behind some firewall configurations—retype the line above like so: `sudo ./scripts/mysql_install_db --force`. If you're building a production server, you may need to contact your system administrator for assistance in resolving the host-name issue.) Then type:

```
sudo chown -R mysql /usr/local/mysql/*
sudo ./bin/safe_mysqld --user=mysql &
```

Your MySQL server should now be activated.

Security and Start-Up Before moving on to building your database, there are a few server details you'll need to address. The most important is security.

By default, MySQL is not password-protected, so you should add a root password with any MySQL installation. To set your password, type the following command into the Terminal window (replacing *newpassword* with a suitably difficult password): `./bin/mysqladmin -u root password newpassword`.

Leave Terminal open when you're done.

Next, you'll want to set your MySQL server to launch automatically when the system boots (so you don't have to manually start it from Terminal each time). You can do this with `mysql-startupitem`, which you downloaded earlier. To install it, simply double-click on the `mysql-startupitem.pkg` file on your desktop and follow the directions.

Test To try out your MySQL installation, return to the Terminal window and type `./bin/mysql -u root -p`. Enter the MySQL password. At the `mysql>` prompt, type `show databases;`.

Under the Database heading, you should see two listings: `mysql` and `test`. (These databases were created automatically during the MySQL initialization process.)

Congratulations! Your OS X Mac is now officially a MySQL server. Type `exit` to leave the MySQL monitor.

STEP 3: CREATE A MYSQL DATABASE

With the three major components now in place (Apache, PHP, and a MySQL database server), your OS X machine has everything it needs to serve up dynamic content—everything except the *content*, that is. Your next task, then, is to build a MySQL database (and its related tables) for your data.

Install phpMyAdmin While MySQL databases can be administered completely from the command line, most of us would prefer to work in a more user-friendly environment. There are many commercial products on the market that help you create and administer databases visually, but none is as economical and widely supported as phpMyAdmin, a free Web-based interface for your MySQL server.

In addition to reflecting the structure of any MySQL database running on your system, phpMyAdmin lets

If you cut your teeth on a graphical database application such as FileMaker Pro, MySQL may seem like an alien creature. But once you understand some of the basic philosophical differences between the two, you'll begin to feel more at home.

One of the most confusing aspects of transitioning from FileMaker to MySQL is really a difference in terminology. To FileMaker users, a database has only two dimensions—fields and rows. In contrast, a MySQL database is multidimensional; it consists of multiple *tables*, each of which contains its own fields and rows.

So whereas MySQL consists of multiple, interconnected tables in a single database, FileMaker consists of multiple, single-table databases that communicate with one another. The result is similar, but the conceptualization and terminology are different.

Another shocker for migrating FileMaker users is MySQL's lack of a built-in user interface beyond the command-line monitor. MySQL runs invisibly in the background, much like the Apache Web server. If you want a graphical interface for MySQL, you'll need to either build one with HTML and PHP scripts or install a management tool such as phpMyAdmin.

you create new databases, manipulate tables within those databases, and manipulate fields within those tables. You can also use it to add, change, and delete the data in your databases.

To install phpMyAdmin, go to the phpMyAdmin Project Web site (www.phpmyadmin.net) and download the latest stable version of the software in PHP (not PHP3) form. Let StuffIt unpack the archive on your desktop, locate the new phpMyAdmin folder, and rename it simply `phpmyadmin`. This will make accessing its URL later much easier. Move this folder into your Sites folder.

Because phpMyAdmin gives total control over your databases to anyone who can access them, it's critical that you password-protect this part of your site as well. Open the `config.inc.php` file (located in your `phpmyadmin` folder) in a text editor. Scan down the page for the line starting with `$cfg['PmaAbsoluteUri'];`, and enter `http://localhost/~username/phpmyadmin/` between the apostrophes to the right of this line.

Continue scanning until you find the line that reads `$cfg['Servers'][$i]['auth_type'] = 'config';`, and replace `config` with `http`. In the next line, make sure the user string is set to `root`. Move one more line down to the password string, and enter your database's root password between the apostrophes. Save and close the file.

Create a Database and Table Once phpMyAdmin is installed, you can use it to begin building a new MySQL database. To access phpMyAdmin, open your Web browser and type in the URL `http://localhost/~username/phpmyadmin/index.php`.

When prompted, enter the user name and the password you added to the `config.inc.php` file. You'll find yourself in the database administrator. (If you receive an error message about a problem with charset conversion, return to the `config` file and locate the line `$cfg['AllowAnywhereRecoding'] = TRUE;`. Change `TRUE` to `FALSE`, and try again.)

To start a new database, click on Home (in the upper left corner of your screen). Enter a name for your database ("sample," for example) in the text field below the Create New Database heading, and then click on the Create button. In the resulting window, create a new table called Contact, with five fields. Then click on Go. >>

Database sample - table contact running on localhost

Field	Type	Length/Values	Attributes	Null	Default	Extra	Primary	Index	Unique	Fulltext
contacts_ID	INT			not null	auto increment		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fname	VARCHAR	32		not null			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lname	VARCHAR	32		not null			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
email	VARCHAR	32		not null			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
phone	VARCHAR	32		not null			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Table comments: Main contacts table

Table type: Default

Save

* If field type is "enum" or "set" please enter the values using this format: 'a','b','c'...
If you ever need to put a backslash ("\") or a single quote (') amongst those values, backslashes it (for example '\xyz' or 'a\'b').

[Documentation]

Setting the Table

phpMyAdmin gives you total administrative control over your MySQL databases and tables. The table-creation interface lets you specify the types of information your table will include and how the table will relate to others in the database.

The next phpMyAdmin screen lets you define the names and characteristics of the fields in your new Contact table. While you don't have to fill out every field right now, a few are crucial.

Every MySQL table must have at least one column (usually the first) in which every row has a unique value. This numeric identifier (ID) field eliminates the possibility of ambiguous query results. To create this ID column, click in the first row of your empty table and enter `contacts_ID` under the Field heading. Because this field is going to store only ID numbers, change the Type pop-up menu to `INT`, for Integer. Next, choose `Auto_Increment` from the Extra column's pop-up menu. This assigns the next available number to each

newly added contact record. Then, because your ID field will be the primary link—or *key*—between this table and others, select `Primary`. Any of the settings not mentioned here can be left at their default values.

Now enter field titles for the remaining four rows of your Contact database: `fname` (for First name), `lname` (for Last Name), `email`, and `phone`. Set the type for each to `VARCHAR`, to signal that these rows will be filled with character strings of variable data. Because it's unlikely that any of these character strings will be longer than 32 bytes—or characters—long, enter this number in the Length/Values column. When you're done, click on `Save` to commit your new columns to the database (see "Setting the Table"). Your database and its tables will appear in a list on the left side of your window. To add additional tables, select the database name from the list and repeat this process.

Entering Data Now that you have a MySQL database with at least one table, you're ready to start populating it with data. But while phpMyAdmin excels at building the structure of your databases, its one-size-fits-all approach makes it less useful for actual data entry. Instead, most database developers will probably want to use PHP and HTML to build a Web interface that provides some custom means of entering and editing data.

Nevertheless, phpMyAdmin does let you enter records directly, which is especially useful for testing purposes. Here's how:

From the list on the left of your screen, select the table you want to populate. Click on the `Insert` link at the top of the page, and then enter the values for your first record in the empty text fields. (Don't enter anything into the ID field. Since it's set to `Auto_Increment`, it should take care of itself.) Select the `Insert Another New Row` option, and click on `Go` to add another record. After you've entered a few records, click on the `Browse` tab to peruse your record set.

Creating a Secure User Until now, we've been working as the root user with our database. But in practice, it's safer to create multiple users, each with limited database privileges. For example, you may want employees to be able to enter data into existing tables but not to alter the structure of those tables or build new ones.

To create a separate MySQL user from within phpMyAdmin, click on `Home` and then select `Users`. Under the `Add A New User` section, select `Host` option and type `localhost`. Enter a user name and password. Under `Privileges`, select the appropriate options. To let users alter data but not your database's structure, for example, activate the `Select`, `Update`, `Insert`, and `Delete` options. (For a full explanation of privileges, see the MySQL documentation.) Click on `Go` to execute your changes.

Click on `Home` and then on `Reload MySQL` to make your user changes take hold. Now you can tell any PHP script to connect as this user, and that script's scope of behaviors will be limited to the actions you specified.

Required Reading

There are hundreds of communities, sample scripts, and tutorials out there to help you get up-to-speed with MySQL and PHP. This list is by no means exhaustive, but here are a few of our favorites.

- **MySQL Tutorial** (www.mysql.com/documentation/mysql/bychapter/manual_Tutorial.html): Terse but definitive, this tutorial focuses exclusively on MySQL.
- **Webmonkey PHP/MySQL Tutorial** (<http://hotwired.lycos.com/webmonkey/programming/php/tutorials/tutorial4.html>): This tutorial pleasantly guides the reader through the creation of simple scripts that interact with forms and include statements, database connection code, data validation, and more.
- **Developer Shed: Speaking SQL** (www.devshed.com/Server_Side/MySQL/Speak/): At some point, you're going to need to speak a bit of Structured Query Language, so you can tell your PHP scripts exactly how to interact with your databases. This tutorial teaches just enough pure SQL to get you there.
- **OnLAMP.com** (www.onlamp.com): This metaresource on AMP development, from the O'Reilly Network (which produces the industry's best technical reference books), emphasizes open-source tools.
- **PHPmac.com** (www.phpmac.com): This site includes PHP development resources tailored for Mac users.
- **HotScripts.com** (www.hotscripts.com/PHP/Scripts_and_Programs/): This is a massive collection of prefab PHP scripts ready to plug in to your site. In most cases, all you have to do (besides have a working PHP-MySQL rig) is tweak a few variables and go.
- **PHPBuilder** (www.phpbuilder.com/): Thousands of PHP developers—from beginning to advanced—congregate here to discuss the finer points of script building, providing an indispensable collection of articles and forums.

A Jump-Start

For even tighter control, you can restrict a user's permissions to a specific database by clicking on the Grants section in the Users table.

This is only a brief introduction to the powerful and broad capabilities of MySQL. With some scripting know-how, you can create impressively complex and specialized database systems to answer almost any demand. To help you quickly get started with MySQL, we've created a sample database and a set of accompanying PHP scripts that you can download and modify for your own purposes (see "A Jump-Start").

STEP 4: ADD DATA TO YOUR WEB SITE

You now have everything you need to build a powerful, highly sophisticated database. But this data won't flow into and out of your Web pages by itself—that's where PHP comes in.

The last stage in creating dynamic content is building PHP scripts that interact with your MySQL server to extract or insert the data you want and format it appropriately. These PHP scripts seamlessly insert their collected data into an HTML layout and send back a finished Web page.

Like any scripting language, PHP is not something you're going to learn overnight. (For some great resources, see "Required Reading.") In case you don't have the time or the desire to learn the ins and outs of a new scripting language, Macromedia and Adobe offer an easier solution. Dreamweaver MX and GoLive 6 both have tools that help you automatically generate PHP scripts. These tools won't help you build your database—you still need phpMyAdmin or something similar for that—but they do offer a more intuitive, user-friendly interface for building dynamic Web sites on top of your preexisting databases.

Like WYSIWYG HTML tools, these applications can create code that is bulkier or less elegant than what you might write by hand. But you may find their ease of use worth the added bulk. (For instructions on setting up GoLive 6 to interact with a MySQL database, see "Go Dynamic with GoLive" elsewhere in this issue.)

Transferring Your Database

If you're using your OS X machine as a development and testing environment, and you plan to hand your finished database project over to a client or ISP for hosting, you'll eventually need to transfer your MySQL database to the client's Web server. This is where phpMyAdmin's Export features come in handy. Here you can choose to export the structure of your tables, your data, or both. You can also choose an export format—such as comma-delimited, XML, or Excel-ready data.

To transfer an entire database from your Mac to another MySQL host, select your database from the

To help you get started with MySQL and PHP, we've created a starter application for you—a simple but functional contact database you can access from any Web browser, along with some useful scripts for managing its contents.

You can download the package at www.macworld.com/2002/11/features/contacts.sit. Inside the .sit file, you'll find a folder with the following files:

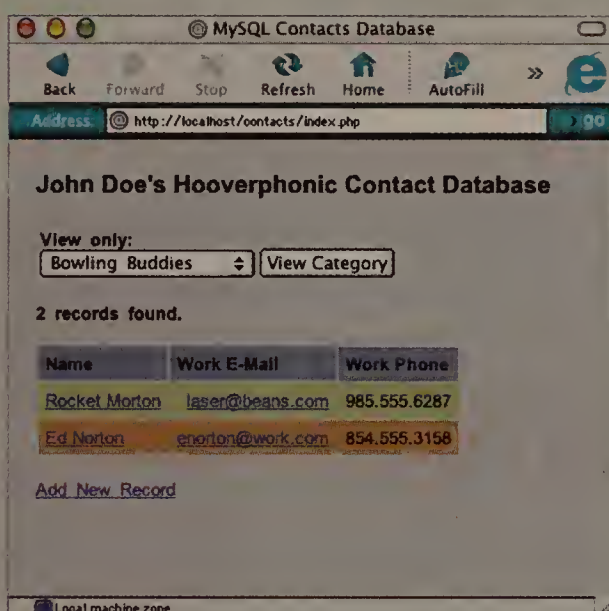
- a readme.txt file with installation instructions;
- a script for testing PHP support on your current system;
- a SQL script file you can use to populate a fresh database with sample tables;
- a set of PHP scripts that interact with your contacts database, letting you view, sort, edit, and add records.

Once it's installed, you'll notice that the sample contacts database is fairly rudimentary. It's not meant to replace your favorite PIM, but it will give you a taste of what's possible with MySQL on your Mac. Feel free to experiment by modifying the database

and/or PHP code. We've taken care to comment the code thoroughly, so you should be able to tell which parts of the application do what.

Extended Learning

Our downloadable sample database will quickly get you up and running with a working contacts application. Because it utilizes multiple related tables, you can view contacts all at once or, as shown here, by category.



list on the left-hand side of the screen, and then click on the Export tab. Select the Structure And Data option and then the Save As File option. Click on Go. Save the resulting file to your hard drive with a .sql extension. To load your data on the other MySQL host, bring up its copy of phpMyAdmin and go to the SQL tab. Click on Browse and then navigate to your .sql file. The database should be re-created on the new host. Make sure that any users and grants you set up on the development machine match those on the live server (these may need to be tweaked both in phpMyAdmin and in your PHP scripts). If all users and permissions are identical on both machines, your PHP scripts should work perfectly when uploaded.

The Last Word

Whether you use your Mac as a live database server or just as a development environment before you transfer your dynamic site to a big Unix server, this introduction to using Apache, MySQL, and PHP is just the beginning—we've barely scratched the surface of what you can do. The sheer number of live demos, downloadable scripts, and free documentation out there is nothing short of awe inspiring. And thanks to OS X, Mac users are once again in the thick of it. □

SCOT HACKER is the Webmaster at U.C. Berkeley's Graduate School of Journalism, where he teaches classes on PHP/MySQL Web development. He is also the author of *The BeOS Bible* (Peachpit Press, 1999).

Conferences January 6 – 10, 2003

Expo January 7 – 10, 2003

San Francisco The Moscone Center

www.macworldexpo.com

January 6 – 10

Macworld
Conference & Expo™

Macworld Conference & Expo is recognized as the “must-attend” event for the Mac community. Join tens-of-thousands of attendees this January to benefit from high-level education and enjoy the strong community and camaraderie that takes place at this all-in-one marketplace.

“The best single source for information on the Mac. Even Windows users would be enlightened.”

Ken, President

“If you use a Mac, you are not using it to its fullest potential until after you attend Macworld.”

Michael, Graphic Artist



Flagship Sponsors

Macworld

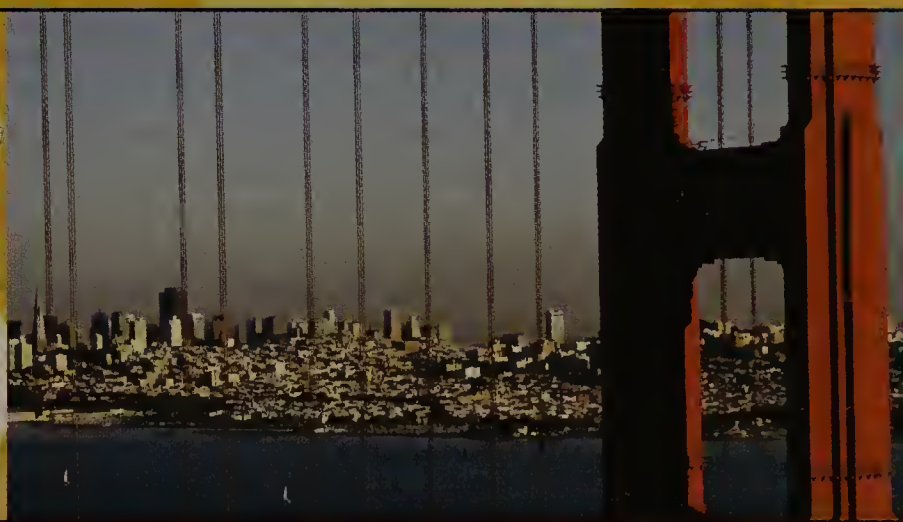
Macworld.com

 **MacCentral**

Platinum Sponsor

COREL

SF03
www.macworldexpo.com



Acquire what you need (knowledge, products, services or solutions) to stay competitive and on the cusp of technology.

Enjoy the one-stop-shop atmosphere only Macworld Conference & Expo can provide you.

Test drive brand new products and services — be one of the first to kick the tires of the latest innovations.

Apply knowledge learned from 5 intense educational days at Macworld Conference & Expo immediately.

Network, exchange ideas and build contacts with like-minded, or not so like-minded, users and industry gurus.

Feel what it is like to be part of a loyal, powerful and holistic community.

Discuss your issues, mention your concerns, or praise the manufacturers of your favorite products directly.

Register online with Priority Code: A-MWN

For more information, call toll free 1-800-645-EXPO

Go Dynamic with GoLive

If your Web site features constantly changing information, such as inventory, you can save time and eliminate the hassle of updating static Web pages by using dynamic content. A dynamic site pulls information from a Web database and combines the results with HTML to create pages on-the-fly. Though making the transition from a static to a dynamic Web site may seem like a Herculean task, Adobe GoLive 6 can make the process less arduous.

When combined with a MySQL database and the PHP server-scripting language, GoLive 6 (\$399; 800/833-6687, www.adobe.com) helps you quickly configure your Web site to accept dynamic content, letting you achieve results that used to require a team of programmers and server-grade computers. Although Adobe provides all the tools you need to set up a dynamic Web site, putting them to use can be difficult if you don't know some of the basics. We'll show you how to configure GoLive and your servers to create a dynamic Web page that lets visitors submit

their personal information, such as name and e-mail address, and then automatically adds this information to a MySQL database of subscribers.

What You'll Need

Before you begin adding dynamic content to your GoLive site, you'll need to have a few things in place.

Server Setup You can't serve up dynamic Web sites without servers—two, to be exact. First, you need an Apache Web server with PHP built-in

(you already have one if you're running Mac OS X). You'll also need a MySQL server, which is an open-source, Web-enabled database. You should have both servers configured and running. (Make sure your MySQL user has permission to both read and modify the database.) In addition, your MySQL server should already have one database with at least one table set up and ready to go.

If you don't already have PHP and MySQL set up, you can install them with the GoLive Preconfigured Servers software. This software (which is located in

the Dynamic Content folder on the CD that comes with GoLive 6's "Web Workgroup Server User Guide") helps you install and configure your server setup and includes several test sites to get you started. (For more information about MySQL and PHP, see "Serve It Up," elsewhere in this issue.)

If you don't want to host these servers on your own hardware, many hosting companies also offer PHP and MySQL access, typically for a small monthly fee.

The Loose Ends GoLive 6 will ask for a few crucial pieces of information during the setup process. Make sure you have on hand the Web server's URL and the MySQL server's IP address or host name. You should also know the name of all databases your Web site will access, as well as their user names and passwords.

Once you have this information, you're ready to configure your GoLive site for dynamic content.

Connect to the Server

Just because you have Web and MySQL servers up and running doesn't mean GoLive 6 knows how to talk to them. Therefore, your next task is to teach GoLive where to find, and how to communicate with, your databases.

GoLive 6 consolidates all of its scripting controls and database-integration settings in a single Dynamic Content pane. To access this pane, open your Web site in GoLive 6. In the Site Settings window (Site: Settings), click on Dynamic Content.

If you don't see the Dynamic Content option in the Site Settings window, it's possible that someone has turned off the module to reduce GoLive's memory and processor needs. To turn it on again, open GoLive's Preferences (⌘-K), select Modules, and then activate the Dynamic Content Module option. Quit GoLive and relaunch the program.

The Dynamic Content pane has a wizard that steps you through the process of installing dynamic-content support on your Web server. As you choose options and proceed, GoLive installs scripts, runs



ILLUSTRATION BY ANDERS WENNGREN

tests, and offers tips for configuring the connection. (Although the Dynamic Site wizard is extremely helpful for setting up a new database connection, you can skip the wizard entirely if you already know what setting you need and want to save time. To access a bare-bones dialog box in which you can manually configure your site, click on the Cancel button after starting the wizard.)

Create a Connection To start the wizard for the first time, click on the Dynamic Site Wizard button in the center of the Dynamic Content pane. If you're returning to a configuration already in progress or you're creating a second configuration, you'll find the link for the wizard in the upper right corner of the pane.

In the first screen, choose PHP as the scripting language. This is the only language GoLive 6 supports for MySQL without additional ASP or JSP configurations. Next, specify which method GoLive should use to upload files to the Web server. GoLive can use the settings you've already defined for FTP or WebDAV file transfers. It can also use a local file path if your Apache server is on the machine that GoLive is running on.

To test your configuration, GoLive will attempt to retrieve files from your Web server as an outside user. But first, the program must know where your Web site lives. In the next pane, enter the URL that corresponds to the root level of your Web site. If your site is nested in a server subdirectory, make sure to specify the entire path to the site correctly (for instance, <http://www.macworld.com/~glenn/>). GoLive creates a new folder called "config" at the root level of your site and places important configuration files in this folder.

Once it has all the information it needs to connect to your site, GoLive tries to upload and retrieve the appropriate files for the scripting language you chose. If these files fail to upload or don't run as expected, GoLive reports an error and offers advice on correcting the problem. After you've taken the appropriate action, use the Test button to retry PHP until you get a clean bill of health.

If someone else is hosting your site, you may find that you don't have enough access to make the changes necessary to pass this testing stage. For example, some troubleshooting may require modifying the php.ini file, which contains systemwide choices for how PHP works. If this happens, you'll need to ask your service provider to make the changes for you; if it refuses, find a new provider with the needed PHP configuration.



FTP Time-Out If you receive an FTP Disconnect message while working in the Dynamic Site wizard, simply click on the Back button and then the Next button. This should refresh the server connection and upload the necessary files again.



Security Setup Once GoLive successfully uploads and tests your site's PHP files, the wizard opens the Security Setup screen. Here you can control access to the authoring features in GoLive, to ensure that unauthorized people can't reconfigure your site. You can choose one of three options for controlling access: Allow Only This Address, which GoLive fills with your local IP address; Allow Only This Subnet, which gives access to an entire local network; or Allow Anyone (see "Stay Secure"). The last option is dangerous because it lets anyone with a copy of GoLive 6 modify your database settings.

If you decide later that you want to change these access settings—adding multiple addresses or networks, for example—you'll have to make the changes by opening and editing the friends.php file (which you can find in the Config: Include subfolder at the root of your site). This file includes directions for adding addresses. Edit the file and then upload it to the server.

You should always make a backup of your friends.php file after you edit it. GoLive has an annoying tendency to overwrite this file, thereby deleting your custom access permissions. If you suddenly discover that you can't connect to dynamic content from a network that used to offer access, reload the friends.php backup copy to the server to restore your settings.

Connect to Your Database

Now that you've taught GoLive how to communicate with your server, you need to connect your site to the specific databases you'll use. To do this, you'll create *data sources*—login settings for accessing individual MySQL databases.

Create a Data Source In the Dynamic Content pane, go to the Data Sources section. To create a new data source, click on New, select the MySQL Database option, and then click on Add Data Source. (You won't be able to add or change data sources until the PHP support has passed its troubleshooting tests.)

In the resulting Add Data Source dialog box, enter a name for your new data source. GoLive uses this name to create a file in which it stores the setting for the new data source.

Stay Secure The Dynamic Site wizard's Security Setup screen lets you restrict access to GoLive's setup files. Allow Only This Address is your safest option.

Please provide us with your contact information.

Name A

Email address

Receive Newsletter? ☐

Submit Query

Dynamic Bindings

☒ Bind To

Content Source formresponse

Field B name_firstlast

Filter

Linking Content

To add dynamic content to a Web page, you must link form elements such as a name field A to the appropriate content source B.

Next, enter the MySQL database server's IP address or host name (mysql.website.com, for example), along with the appropriate port. The port identifies the server's specific location on a given machine. (Most MySQL servers operate on port 3306.) GoLive requires that you add the port to the end of the IP or host address, separated by a colon (for example, mysql.website.com:3306).

Set Security GoLive will also prompt you to enter the database's name, as well as a user name and password that permit you to access the database.

Because GoLive's PHP scripts store the user name and password unencrypted on the Web server, it's wise to make sure every database has a unique user account with access restricted to specific databases—not open to the server as a whole. For sites in which visitors aren't entering information, you might consider disabling the database user's write permission. This way, if someone finds a database's user name and password, he can't wreak havoc with the rest of your settings. Although GoLive protects the database's user information, having unencrypted passwords on a Web server is always risky.

Test Data Access Once you've entered the settings for your data source, click on the Test button. If the process completes successfully, you should see a list of the tables within that database.

If GoLive reports errors, such as an inability to access the database server, double-check the access setting in your friends.php file. If that seems fine, verify that you've entered the correct database server address and individual database name and password, and that the database user has the appropriate privileges.

Add Content to Your Web Page

With all the necessary dynamic content files installed on your server, you're ready to begin inserting database content into your Web page. To create a page that automatically adds new subscribers to your MySQL database, you'll connect form elements to individual fields in a database table.

First, design an HTML page that includes a form with fields for a name, an e-mail address, a newsletter check box, and a Submit button (see "Linking Content"). Convert the HTML file to a PHP file by selecting Dynamic Bindings from the Windows menu and clicking on the Convert Page button.

Your data sources link the Web site to a specific database on the MySQL server. Now you need to link page elements to specific tables and fields within that database. GoLive calls these connections *content sources*, and you must create them for each page.

Drag a Content Source icon from the Objects palette's Dynamic Content tab into the Head section of the page. To create a new content source, select the Content Source icon in the Head section. In the Content Source Inspector, select the table you want to access. Create a name for the new content source and then select MySQL Database from the Type pop-up menu.

From the Database menu, choose the appropriate data source and then specify which table you want from the Table menu. GoLive now displays the fields associated with that table. (Experienced MySQL users can filter out the few fields they need from a large, unwieldy table by entering a SQL query instead of choosing a table name.) To use the same tables on multiple pages, you can save time simply by duplicating this page or copying the content source.

Once you've defined your content sources, all that's left to do is bind the fields in the table to individual form elements. Select a form element on the page—for example, the e-mail field. In the Dynamic Bindings palette, select the content source and then the field name. Repeat this process for each form element.

You'll use the Submit button to tell GoLive how to interact with your database. In this case, you want to use the information from the page's form elements to create a new record in the database table. In the Dynamic Bindings palette, click on the box next to Action and select Add Record from the pop-up menu below. Assign the content source. This palette also lets you redirect visitors to different Web pages for successful and unsuccessful database additions.

Once you've assigned all your content sources, resync the site to upload files. When users fill out your Web form, their information will automatically appear in your database—ready to use as a mailing list or link to other information.

Where to Go from Here Once you've mastered this basic Web form, you've learned the most complicated part of using GoLive 6 to integrate database content into a Web site. You can easily build on these skills to create different types of dynamic content—for example, templated catalog pages with product photographs, details, prices, and other information stored in your database. Once your Web site is properly configured to interact with your database, what you do with your dynamic content is up to you.

GLENN FLEISHMAN is a regular contributor to *Macworld* and the author of the *Practical Mac* column in the *Seattle Times*. This article is a modified excerpt from *Real World Adobe GoLive 6* (Peachpit Press, 2002), which he coauthored with Jeff Carlson. For more information about the book and a downloadable excerpt, visit <http://realworldgolive.com>.

Win an Apple iPod!
Details below



Influence.

Be part of Macworld's Reader Panel and make a difference! Participate in online surveys and your answers will help influence subjects ranging from the most important issues facing the Mac platform to our own editorial content. Plus, get a chance to win cash and other prizes. Complete the first survey now and you'll be entered to win a 10GB Apple iPod!

Participation is open to all readers* of any technical level and requires only a small amount of time. To join or find out more, please visit www.rsch.com/macsurvey/

The fine print NO PURCHASE NECESSARY TO ENTER OR WIN. Void where prohibited by law. Drawing is open to all Macworld readers* who complete the survey. We must hear from you by November 12, 2002 to be included in the drawing. Winner will be notified by e-mail approximately two weeks after survey close, on or about November 26, 2002. For Official Rules, see page 106 in this issue or online at www.rsch.com/macsurvey/rules.htm. All information provided will be kept completely confidential and used only in combination with other respondents. Personal information will not be sold, shared, or used in any way outside the scope of this research. See www.rsch.com/macsurvey/privacy.htm for a full privacy statement.

*excluding current panel members

Macworld
THE MAC PRODUCT EXPERTS

What Lies Beneath

I'll bet that when Apple's marketing mavens gathered to pitch slogans for Mac OS X, they discarded the motto "All the gnarliness of Unix!" in about two ticks. But let's face it, an indisputably challenging operating system lies beneath OS X's Aqua surface. With this in mind, we examine various OS X arcana—such as force-quitting Classic, renaming directories, commanding Terminal, and formatting with Unix File System—and look at some factors that will determine whether using OS X all the time makes sense for you.

A Classic Case

Classic often fails to quit when I shut down; when this happens, I have to invoke the Force Quit command from the Apple menu. Is there a way to do this from the Dock?

Fred Sandsmark, *Macworld.com forums*

By default, no. When the Classic environment first launches, an OS 9 icon appears in the Dock, but don't be fooled. This icon doesn't represent the

Classic environment; it represents the Classic Startup application, which can be found at System: Library: CoreServices. Once Classic has fully launched, the icon disappears.

Of course, selecting Force Quit from the Apple menu is not terribly inconvenient, and pressing ⌘-option-escape to conjure up the Force Quit Applications window is just as easy, but if your deepest desire is to force-quit

the Classic environment from the Dock, there is a way—the \$8 Classic? V2, from XGadgets (www.xgadgets.com). Once you install this utility, you can launch, restart, shut down, and force-quit Classic from the Classic? V2 icon in the Dock or from the Classic? V2 menu. (You can choose to install the dockling, the menu, or both.) Classic? V2 also provides access to Classic's control panels and allows you to rebuild the Classic desktop.

As for your general problem of an uncooperative Classic during shutdown, updating your version of

OS X may help. I had a similar problem with early versions of OS X 10.1. That problem no longer occurs when I run OS X 10.1.5.

Legal Name Changes

If I change the name of my hard drive, will iTunes and iPhoto forget the location of their respective libraries?

Kathy Thomas, *Philadelphia, Pennsylvania*

No. Although it's true that your Mac performs best when you refrain from renaming any folders created by Mac OS, renaming a volume or hard drive won't cause iTunes or iPhoto to lose track of their respective libraries.

What *will* seriously mess with OS X's mind is renaming the Applications, Library, System, and Users folders at the root level of your OS X volume (and if you don't have root privileges, you won't be able to rename these folders from within OS X). Likewise, if you rename the Utilities folder inside the Applications folder, applications such as Print Center won't be able to do their jobs. If you rename the Pictures folder inside your user's folder, iPhoto will launch with nary a photo in its library. And if you rename the Library folder in your user's folder, you'll lose preference settings for OS X and its applications.

Typical Terminal Commands

Is it possible to launch a program from Terminal?

Julian Wai, *Macworld.com forums*

Sure. Just use the Unix `open` command. If you want to launch the Calculator application, for example, you'd type `open /Applications/calculator.app`.

The `/` characters denote directories (or, if you want to think of it graphically, the folder hierarchy). What this command really says is "Open the Calculator



ILLUSTRATION BY LEO ESPINOSA

application in the Applications folder at the root level of the OS X volume.”

Note the space between `open` and `/`. Without that space, the `open` command—or any command that moves you to another directory—won’t work.

You can use the same command to open a folder: `open /Users/chris/Pictures`, for example, whisks me to the Finder, where my open Pictures folder awaits (a quicker way to do the same thing is to type `open ~/Pictures`—the `~` character is a shortcut to your users folder).

There are several other useful, easy-does-it Terminal commands you can type after the prompt:

`cd` (change directory) followed by a path moves you to a new folder: for example, `cd /Applications/Utilities` moves you to the Utilities folder inside your Applications folder at the root level of your OS X volume. `cd /` takes you to the root level of your OS X volume; `cd` without any following character transports you to your user’s folder—Users: chris, for example.

`pwd` (print working directory) reveals the full path to your current location. For example, if I’ve been rummaging around in my user’s folder, `pwd` displays `/Users/chris`.

`ls` (list) lists all the files in your current location. If I type this command while in my user’s directory, all the folders found in a user’s folder—Applications, Desktop, Documents, Library, Movies, Music, Pictures, Public, and Sites—are displayed, along with any other files I may have flung into my chris folder. To list the files in a different location, type `ls` and the path to the location you desire. `ls /Applications`, for example, shows you the contents of the Applications folder at the root level of your hard drive.

`man` followed by a command name produces the electronic manual pages for that command. For instance, typing `man ftp` produces line after line of instructions on using `ftp` with the flavor of Unix underlying OS X.

Never Clone Alone

I work in a college environment where I need to clone over 30 Macs with the same disk image that I created for the Mac lab. Is there an application that will allow me to do this?

Howard Yong, *Macworld.com forums*

There are ways to do this in both OS 9 and OS X. Let’s start with OS X:

In OS X, you can manage this kind of thing with Mike Bombich’s donationware utility, Carbon Copy Cloner (www.bombich.com/software/cccl.html). This valuable tool allows

you to clone an OS X volume to another volume or drive (including an iPod)—though you can’t clone to a CD-R or DVD-R disc.

To begin, just launch Carbon Copy Cloner, choose a source and a destination drive, and then select the items you’d like to copy from one volume to the other (see “Send in the Clone”). In a matter of minutes (up to around 30 minutes if you have a lot of files selected), the utility will create a bootable OS X volume that contains those items.

In OS 9, if the image is smaller than 640MB, you can simply burn the material you want to a CD-R and then copy the contents of the CD-R to each Mac. If you want this image to contain a System Folder that, when copied to each computer, will boot that Mac, turn to OS 9’s Disk Copy application, which you’ll find in the Utilities folder inside the Applications (Mac OS 9) folder.

Choose Create New Image from Disk Copy’s Image menu, select 663,000K (CD-ROM 12cm, Full) from the Size pop-up menu in the resulting Save Disk Image As dialog box, give the image a name, and click on Save. When the disk image mounts, you’ll be asked to initialize it. Do so using the default Mac OS Extended format.

Now insert the OS 9 installation disc, run the installer, and select the disk image you just created as the destination for the installation. Add the other material you want to the disk image and then burn the contents of the disk image to a CD-R. If the data you want to copy exceeds the capacity of a CD-R, copy the material to an external hard drive

and move from Mac to Mac, copying the data from the drive to the Mac’s start-up drive.

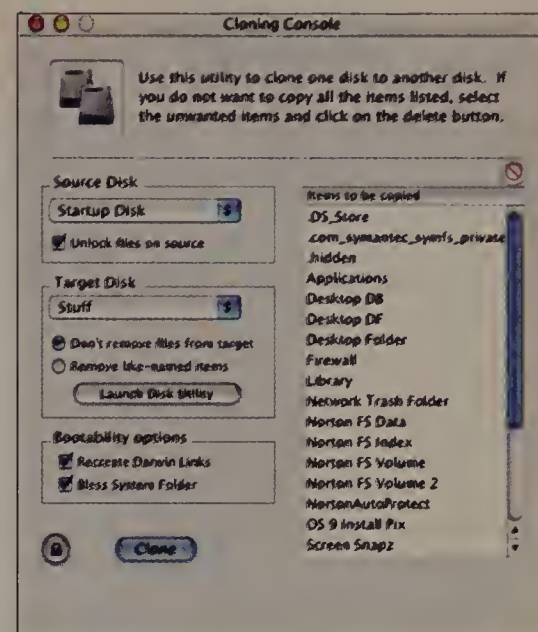
Usable File System?

The OS X installer offers me the option to format my hard drive in the UFS (Unix File System) format. Are there any circumstances under which I’d want to do this?

“palomino,” *Macworld.com forums*

Regular ol’ Mac users will find a UFS-formatted volume more hindrance than help. When Mac OS X is installed on a UFS volume, AirPort won’t work. Nor can you change a hard drive’s name. Nor will the Classic environment function the first time it’s opened on a UFS-formatted volume. Nor will a

>>



Send in the Clone

Carbon Copy Cloner allows you to create a bootable duplicate of your OS X volume.



TIP OF THE MONTH

When I choose the Open or Save command in OS X, I’d like to quickly navigate to the hard drives that appear on my desktop, as I can with OS 9. Unfortunately, the Desktop panes in the Open and Save dialog boxes don’t contain volumes. To access them, I must instead scroll the window all the way to the left. Here’s a way around that:

Create aliases of your volumes in the Desktop folder (in your user’s folder)—this places icons of the volumes on your desktop and in the Desktop portion of Open and Save dialog boxes. To eliminate the duplicate icons, select Preferences from the Finder menu and deselect the Hard Disks option under Show These Items On The Desktop.

Peter A. Hillman

UNSOLICITED ADVICE

Apple's QuickTime Pro 6.0 (\$30; 800/692-7753, www.apple.com) includes the Advanced Audio Coding (AAC) codec, developed by Dolby Laboratories—AAC can make audio files smaller and higher in quality than files produced using the MP3 standard. As we went to press, Apple's iTunes couldn't encode tunes with this codec, but it could play them.

To automatically bring AAC-encoded songs into iTunes, just download and run a copy of Doug Adams's \$5 Make Mine MPEG-4 AppleScript (www.malcolmadams.com/itunes) or Scott Nichol's free AAC encoder (www.macmethod.com).

You may also want to try the manual method, which is also the general procedure for converting and encoding any QuickTime movie. Learn it, and you'll have a good idea of how to convert a MIDI file to AIFF, an AVI file to MOV, or a MOV file to WAV.

Insert an audio CD, launch QuickTime Player Pro (the free version of QuickTime doesn't allow you to encode files), select Import from the File menu, and navigate to the audio file you want to import. Now select Export from the File menu, and in the resulting Save Exported File As window, select Movie To MPEG-4 from the Export pop-up menu. Click on the Options button in this window; then click on the Audio tab in the MPEG-4 Settings window that appears, and move the slider so that 128 Kbps is selected (this bit rate sounds remarkably good yet keeps file size down). Click on OK to dismiss the MPEG-4 Settings window and then on Save to begin encoding your file.

Moving your AAC-encoded files into iTunes is a simple matter. Just launch iTunes and either select Add To Library from the File menu and select your files, or drag the encoded files to the iTunes Library window.

UFS volume appear on your Mac's desktop when you boot into OS 9. Nor can you use the type and creator codes beloved by all right-thinking Mac users to associate a file with an application.

Given all these *nors*, there's no reason on earth to format your drive as a UFS volume, unless you're developing Unix applications on your Mac. For that, UFS is the format you're likely to choose.

X Stands Alone

I purchased a new iBook, and I'm thinking of partitioning the hard drive and reinstalling OS X only. Can I do this and partition OS X using the installer CD, or must I install OS 9 and then install OS X?

Nadrell Evans, *Macworld.com forums*

To address your specific question, yes, you can partition your iBook's drive with the OS X installation CD and install just OS X—there's no need to install OS 9 if you don't care to. But your question brings up a broader question: Can modern Macs now function in a completely OS X environment?

Perhaps. Whether you can dispense with OS 9 and the accompanying Classic environment depends a great deal on what kind of duties your Mac performs. Run-of-the-mill Mac users who use their Macs for e-mail, Web browsing, moviemaking, music playing, and word processing can function quite well with

OS X-native applications such as OS X 10.2's Mail; Entourage (part of the \$459 Microsoft Office suite; 800/426-9400, www.microsoft.com); Qualcomm's Eudora (free with ads, \$40 without ads; 858/587-1121, www.qualcomm.com); any of a slew of OS X-native Web browsers; Apple's iMovie, iTunes, and \$79 AppleWorks (800/692-7753, www.apple.com); and Microsoft Word (\$370). And Adobe's (800/833-6687, www.adobe.com) OS X support in applications such as Illustrator (\$400) and Photoshop (\$600) will keep most graphic artists happy in a completely OS X environment (though an unsupported scanner or printer may force these users into OS 9 from time to time).

On the other hand, if you depend on QuarkXPress (\$900; 303/894-8888, www.quark.com) to get your pages to print, you're still staring at OS 9's Platinum interface. Likewise, musicians seeking a wide variety of OS X-native professional sequencing and digital-audio tools have a while to wait.

Inconsistent FireWire Booting

I recently purchased a portable FireWire hard drive and would like to use it to boot my Mac, but sometimes it boots and other times it does not. What can I do to consistently boot from this drive?

Kent Holubar, *Redwood City, California*

My fervent prayer is that by the time you read this, booting from a FireWire drive will no longer be an inconsistent exercise. Among its many wonders, that hepcat OS X 10.2 (Jaguar) allows a wider variety of FireWire devices to boot your Mac. Previous OS X versions had a problem doing this because some FireWire-bridge chip sets—for example, the Texas Instrument chip set found in SmartDisk's FireLite drives (www.smartdisk.com)—could interrupt the boot process and keep the drive from mounting. Those drives using the Oxford 911 chip set often had greater success booting OS X 10.1.

If you haven't upgraded to Jaguar and your Mac has problems booting from a FireWire drive, try unplugging the drive when the Mac seems incapable of booting (you'll see a broken folder icon), wait about five seconds, and then plug the drive back in. That five-second pause is crucial: failing to wait may cause the Mac to crash with a kernel panic. I've been able to boot my Titanium PowerBook G4 running OS X 10.1.5 by following this procedure. □

Beneath his crunchy exterior, Contributing Editor CHRISTOPHER BREEN is the oh-so-sensitive author of *Mac 911* and *Secrets of the iPod* (Peachpit Press, 2002).



Share tips and discuss Mac problems with other Mac users in the Mac 911 forum (www.macworld.com/subject/mac911). Also send tips by e-mail to mac911@macworld.com. We pay \$50 for tips selected for publication in *Macworld*. All published submissions become the sole property of *Macworld*. Shareware and free-ware mentioned in *Mac 911* are available at www.versiontracker.com.

ADVERTISERS AND PRODUCT INDEX

Interact with the companies whose products and services are advertised in **Macworld**

ADVERTISER	INTERACT	PAGE NO.
Alsoft	800-257-6381	48-49
Anthro	anthro.com	15
Apple Computer	-	C2-1
Aspyr Media	aspyr.com	56,57,58,59
Brother International Corp.	brother.com	16
Canon USA	usa.canon.com	13
CDW	800-509-4239	98-99
Club Mac	800-217-9153	102-103
Corel Corporation	corel.com/resellers	C3
Epson America, Inc.	800-GO-EPSON	4-5
Formac	formac.com	52
Geek Cruise	geekcruises.com	68-69
IDG Expo	macworldexpo.com	84-85
J&R Computer World	800-221-8180	104
Kensington	kensington.com	C4
MacMall	800-222-2808	94-97
MacWarehouse	800-355-5841	20-21
MacZones	maczone.com	100-101
MegaHaus	800-786-1184	105
Memorex	memorex.com	10
MicroMat	800-829-6227	28
Microsoft	microsoft.com	2-3
Olympus	olympusamerica.com	27
QMS/Minolta	minolta-qms.com	31
Roxio	roxio.com	43
Thursby Software Systems	thursby.com	12
Xante	xante.com	32-33
Xerox Network Printers	xerox.com/officeprinting	8-9
Y.E. Data	yedata.com	46

PAGE NO.	ADVERTISER	GET-INFO
S O F T W A R E		
BUSINESS/PRODUCTIVITY		
2-3	Microsoft	-
12	Thursby Software Systems	124
ENTERTAINMENT		
56,57,58,59	Aspyr Media	91
GRAPHICS/DTP		
C3	Corel Corporation	79
MULTIMEDIA		
43	Roxio	140
UTILITIES		
48-49	Alsoft	141
10	Memorex	-
28	MicroMat	37
A C C E S S O R I E S		
FURNITURE		
15	Anthro	-
H A R D W A R E		
COMPUTER SYSTEMS		
C2-1	Apple Computer	-
HARD DISK STORAGE		
46	Y.E. Data	22
PRINTERS		
16	Brother International Corp.	119
4-5	Epson America, Inc.	-
32-33	Xante	113
8-9	Xerox Network Printers	101
MISCELLANEOUS		
C4	Kensington	1
MONITORS/ GRAPHICS BOARDS		
52	Formac	-
SCANNERS & DIGITAL CAMERAS		
13	Canon USA	23
27	Olympus	7
31	QMS/Minolta	105
M A I L O R D E R		
98-99	CDW	2
102-103	Club Mac	-
104	J&R Computer World	57
94-97	MacMall	132
20-21	MacWarehouse	19
100-101	MacZones	72
105	MegaHaus	108
S E R V I C E S		
TRADESHOWS/CONFERENCES		
68-69	Geek Cruise	-
84-85	IDG Expo	-

New from Apple!



Authorized Reseller

NEW 17" widescreen iMac!

Up to 17" LCD flat screen with an adjustable base!

The new Apple iMac® is designed around a truly stunning 17" or 15" LCD flat screen display. Instead of your neck and back doing the adjusting, the new iMac allows you to effortlessly adjust its height or angle with just the touch of your finger.

Inside lives the fastest iMac ever, with up to a powerful 800MHz PPC G4 processor that blazes through Mac OS X applications. The revolutionary SuperDrive is also available to let you burn your own DVDs and customized CDs!

- ▶ Up to 800MHz PowerPC™ with Velocity Engine™
- ▶ Up to 256MB RAM
- ▶ Up to 80GB HD
- ▶ 2 FireWire® ports
- ▶ 5 USB ports
- ▶ 56K V.90 modem
- ▶ 10/100BT Ethernet

The drive you need:

The iMac G4 features a CD-RW drive, Combo drive (DVD-ROM plus CD-RW) or SuperDrive™ (DVD-R plus CD-RW).

iMac G4
starting at

\$1,294! #643250

#643250	700MHz G4/CD-RW/15"	512MB FREE!	\$1,294*
#643252	700MHz G4/Combo/15"	512MB FREE!	\$1,494*
#643254	800MHz G4/SuperDrive/15"	512MB FREE!	\$1,794*
#552067	800MHz G4/SuperDrive/17"	256MB FREE!	\$1,994*

New!
17 inch
Widescreen!
1440 x 900

FREE!
Up to an
Extra 512MB
RAM!

The NEW eMac!

Now available with a Combo Drive or the SuperDrive!

The new eMac™, Apple's most affordable PowerPC G4 based system, comes complete with a 17" flat CRT display and a space-saving, all-in-one design that fits right in your home. Plus, the eMac includes award-winning digital lifestyle applications and Mac OS X, Apple's rock-solid operating system.

Features:

- ▶ Up to 800MHz PowerPC G4
- ▶ Up to 256MB SDRAM; exp. to 1GB
- ▶ 40 or 60GB Ultra ATA hard drive
- ▶ Features Combo Drive (DVD-ROM/CD-RW) or SuperDrive (DVD-R/CD-RW)
- ▶ NVIDIA GeForce2 MX with 32MB of DDR SDRAM
- ▶ VGA video mirroring
- ▶ Two FireWire® ports
- ▶ Built-in 10/100BT ▶ 56K

- ▶ Two USB ports on keyboard & three ports on computer
- ▶ Mac OS X v10.2 Jaguar and Mac OS 9.2 included



FREE!
Extra
256MB
RAM!

eMac G4 starting at
\$1,094! #590884

#590884	700MHz/40GB/Combo	\$1,094*
#590886	800MHz/60GB/SuperDrive	\$1,494*

Go Wireless!
Apple AirPort® Card
only **\$99** #962119

#965277 AirPort Base Station \$294



MacMall—Your #1 Source for the Best Hardware and Software Deals!

GVP 120GB FireWire Hard Drive

only
\$229 #505565

New!

Sonica
Pro-quality audio upg. for surround sound

only
\$78⁹⁹ #542420

New!

Maya 4.5
New multi-processor support for rendering IPR!

only
\$1,999 #968426

New!

Boris FX 6.1
Premiere compositing & effects—now for OS X!

only
\$595 #551386

Radeon 9000 Pro
64MB DDR AGP Video Card

only
\$149 #552375

Nikon Coolpix 2000
2.0 Megapixel, 3X Optical Zoom

only
\$249 #537920

GL2 Mini DV Camcorder
3 CCD's, Fluorite lens

Call! #537667

JBL Creature 3-Piece Speaker System

only
\$124⁹⁹ #552374

Adobe Photoshop Elements 2.0

only
\$86⁹⁹ #548463

Epson Stylus Photo 960
2880 X 1440 dpi

only
\$349⁹⁹ #546709

Adobe Premiere 6.5
upgrade only

only
\$144⁹⁹ #554358

discreet cleaner 6
Streaming video & audio optimized for OS X!

only
\$449⁹⁹ #553161

*Promotional offers cannot be combined. Please check individual promotion details for ending date and other restrictions or call your Account Executive for more information. Prices, specifications and promotional offers are subject to change without notice. Limited to stock on hand. While we do our best to check errors, mistakes may occur—call to verify pricing. **FREE RAM OFFER**—RAM is free after redemption of \$49.95 MacMall mail-in rebate on the following skus: #643250, #643252, #643254, #643248 and #643246. No rebate required for free RAM on the following skus: #552067, #590884, #590886, #590881 and #590883. ALL free RAM offers require a \$39.99 MacMall professional installation fee. Offer does not include #972233, #973554 or XServe.

MacMall

MacMall EZ Payment Plan · Fastest overnight delivery!
We'll beat any price or competitive promotion on any Mac computer! Call for details.

1.25GHz! Introducing the new Power Mac G4 Dual Processor!

New Power Mac G4 models!

Now with speeds up to an incredible dual 1.25GHz!

Newly designed from the inside out with an ultrafast Xserve-based architecture, the dual processor Power Mac® G4 delivers unprecedented performance.

- Dual 867MHz, 1GHz, or 1.25GHz PowerPC G4 processors
- Up to 120GB Ultra ATA Hard Drive (7200rpm)
- Up to 2MB DDR SRAM L3 cache per processor with up to 4GBps
- 256K on-chip L2 cache

- Four DIMM slots supporting up to 2GB of DDR SDRAM
- Features SuperDrive (DVD-R/CD-RW) or Combo drive (DVD-ROM/CD-RW)

Power Mac G4 starting at

\$1,694! #643246

#643246	867MHz DP G4	\$1,694*
#590881	1GHz DP G4	\$2,494*
#590883	1.25GHz DP G4	\$3,294*



Display & speakers sold separately.

Titanium PowerBook G4!

Speeds up to 800MHz!

The Titanium PowerBook® G4 lets you edit your digital movies, watch DVDs and burn

your own CDs anywhere with its slot-loading Combo drive.

- 15.2" screen display with 1280 x 854 resolution

PowerBook G4 starting at

\$2,494! #643248

PowerBook G4 Series

#643248	667MHz G4/Combo/DVI	\$2,494*
#972233	800MHz G4/Combo/DVI	\$3,194*



FREE!
Extra 512MB
RAM!
(667MHz DVI
model only)

Powerful Apple iBook G3!

Speeds up to 700MHz!

Turbocharged with up to a 700MHz G3 processor, the iBook® packs serious power into a slim, stunning design!

- Up to 700MHz PPC G3
- 512K on-chip Level 2 cache
- Up to 256MB PC100 SDRAM
- Up to 14.1" TFT XGA display
- DVD-ROM/CD-RW Combo Drive or 24X CD-ROM

iBook G3 starting at

\$1,194! #642970

#642970	600MHz/CD-ROM/12.1"	\$1,194*
#642973	700MHz/Combo/12.1"	\$1,494*
#973554	700MHz/Combo/14.1"	\$1,794*



FREE!
Extra 256MB
RAM!
(12.1" models
only)

In Stock! 20GB Apple iPod!

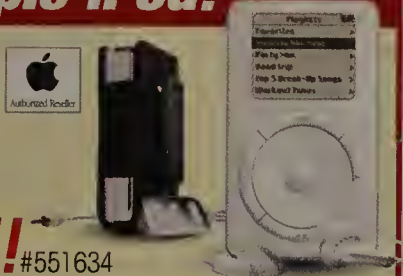
The revolutionary Apple iPad MP3 player has been redesigned into a sleeker, more portable package that now holds up to 4,000 songs! The new 10GB & 20GB models now include a protective carrying case and a remote control! And it's now available for Windows computers—call for details.

New iPod™ 20GB with Carrying Case only \$494! #551634

#551632	Apple iPad 10GB with Protective Carrying Case	New! \$394
#551630	Apple iPad 5GB	New! \$294

Price Drop! Now save up to \$150 on Apple iPod!

#970381	Apple iPad 10GB	was \$499	now \$349
#964598	Apple iPad 5GB	was \$394	now \$294



NEW! Mac OS X version 10.2!



Over 150 compelling new features!

Now with QuickTime 6 and Instant Messaging!

Mac OS X Version 10.2

Mac OS X Version 10.2, "Jaguar", combines the rock-solid reliability of UNIX with the ease of use of Macintosh!

\$98⁹⁵ #551926

only Price after \$21 MacMall mail-in rebate. Price before rebate is \$119.95. Offer expires 10/31/02.



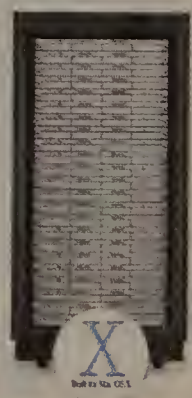
The NEW Xserve from Apple!

1U rack-mount server!

The Xserve rack-mount server offers phenomenal processing power, jaw-dropping storage capacity and remote management tools!

- Features up to two 1GHz G4 processors
- 1U rack-mount design
- 2MB of DDR Level 3 cache
- Up to 480GB storage

- Dual Gigabit Ethernet
- Mac OS X Server software with an unlimited license—a \$994 value!



Xserve 1U starting at

\$2,994!

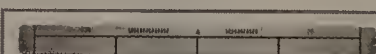
#973067

Xserve Series

#973067	Xserve with 1GHz, 256MB RAM, 60GB HD	\$2,994
#973069	Xserve with 1GHz Dual, 512MB RAM, 60GB HD	\$3,994
#973089	AppleCare Premium Service for Xserve	\$949

Xserve Expansion Options

#973092	256MB Memory Module	\$164
#973103	512MB Memory Module	\$329
#973086	60GB Drive Module	\$349
#973095	120GB Drive Module	\$499



The Apple Xserve holds nearly half a terabyte of data per unit & more than 20 terabyte per 42 unit stack!

For your best price call 1-800-217-9492 macmall.com

Priority Code: ZMWD2B3

MacMall—your source fo

Powerful Final Cut Pro 3 Editing Systems!

Power Mac Dual 867MHz Combo Drive Final Cut Pro 3 Editing System

A convenient package that features the turbocharged Power Mac system with 867MHz of dual processing speed as well as the most advanced and essential components of a powerful editing system.

- Power Mac® G4 Dual 867MHz/768MB RAM/60GB HD/Combo Drive
- Apple® 17" Studio Display
- Final Cut Pro™ 3
- SmartSound Sonicfire Pro
- Contour ShuttlePRO Multimedia Controller ► Matrox RTMac Video
- Sony 14" NTSC Monitor
- Harman/Kardon 3 Piece SoundSticks™



all this for only **\$6,494** #968234

Power Mac Dual 1GHz SuperDrive Final Cut Pro 3 Editing System

This more powerful editing system has been configured for professionals who are looking for even more of a punch—dual processors, more RAM, a larger hard drive plus all the essential editing components!

- Power Mac G4 Dual 1GHz/768MB RAM/80GB HD/SuperDrive
- Apple 17" Studio Display
- Final Cut Pro 3
- SmartSound Sonicfire Pro
- Contour ShuttlePRO Multimedia Controller ► Matrox RTMac Video
- Sony 14" NTSC Monitor
- Harman/Kardon 3 Piece SoundSticks



all this for only **\$7,194** #968230



PowerBook 800MHz DVD/CD-RW Final Cut Pro 3 Editing System

- PowerBook® G4 800MHz/512MB RAM/40GB HD/Combo DVD/CD-RW Drive
- Final Cut Pro 3
- Contour ShuttlePRO Multimedia Controller ► SmartSound Sonicfire Pro
- dvcreators.net—The Secrets of Final Cut Pro and Final Cut Pro Powerstart CDs
- MacCase for PowerBook by Kusuma



all this for only **\$4,894** #970779

Power Macintosh Models Featuring Avid DV Express!



Power Mac Express DV 1GHz Dual Processor System

- Power Mac G4, Dual 1GHz Processor
- 768MB total RAM
- 80GB Boot Drive ► SuperDrive
- Avid Express DV 3.5 for Mac
- External 120GB FireWire Drive
- Apple 17" Studio Display
- Sony 14" NTSC Studio Monitor
- 3 Year AppleCare Protection Plan

all this for only **\$6,294** #555162

PowerBook Express DV 800MHz Processor System

- PowerBook G4, 800MHz Processor
- 512MB total RAM
- 40GB Boot Drive ► Combo Drive
- Avid Express DV 3.5 for Mac
- External 120GB FireWire drive
- Carrying Case
- 3 Year AppleCare Protection Plan

all this for only **\$5,594** #555179

High Quality Professional Broadcasting Products from MacMall!

DSR-11 DVCAM Compact VTR

This VTR features both NTSC and PAL playback and recording capabilities. It includes iLINK™ connectivity and can record and play back either DVCAM or consumer DV formats!

SONY

**CALL
FOR BEST
PRICE!** #961471

Sony Professional VTRs

#962506	DSR-V10	CALL FOR BEST PRICE!
#961471	DSR-11	CALL FOR BEST PRICE!
#971904	DSR-25	CALL FOR BEST PRICE!
#962504	DSR-30	CALL FOR BEST PRICE!
#971906	DSR-45	CALL FOR BEST PRICE!
#961140	DSR50	CALL FOR BEST PRICE!
#961472	DSR-1500	CALL FOR BEST PRICE!
#961474	DSR1800	CALL FOR BEST PRICE!
#964316	UWV1200	CALL FOR BEST PRICE!

Sony Professional VTRs

#961665	UWV1800	CALL FOR BEST PRICE!
#961677	DSR2000	CALL FOR BEST PRICE!

JVC Professional

#971979	HR-DVS3U	\$1,049 ⁹⁵
#971987	SR-VS30U	\$1,299 ⁹⁵
#971999	SR-S365U	\$1,078 ⁹⁵

Panasonic Professional

#961457	AG-DV1000	\$1,049 ⁹⁵
#951051	AG-DV2000	\$2,199 ⁹⁵
#961467	AJ-D230HFN	\$3,749 ⁹⁵

MacMall

MacMall EZ Payment Plan · Fastest overnight delivery
We'll beat any price or competitive promotion on any Mac computer! Call for details!

More affordable DV solutions!

Canon XL1S

Professional features that will truly customize your shooting experience!

The Canon XL1S is not one, but many different cameras. Interchangeable lenses and viewfinders allow the XL1S to be tailored for optimal performance in any shooting condition. The XL1S raises the standard for others to follow.

- Digital video format and IEEE 1394
- Interchangeable lens system

- 3 CCD with Pixel Shift technology
- 3 shooting modes: Normal Movie, Digital Photo and Frame Movie
- Audio/video inputs and outputs

**Canon XL1S
Digital Camcorder**

**CALL FOR
BEST PRICE!** #961437

Canon



Color Video Monitors!

14" Trinitron Color Video Monitor SONY.

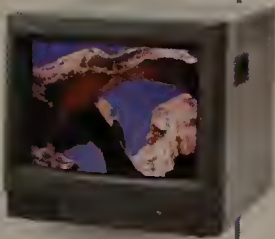
- High resolution of 500 TV lines
- Features both loop-through composite and Y/C video inputs
- Color balance stability



Sony PVM14N5U
Color Video Monitor
**CALL FOR
BEST PRICE!**
#960939

14" Monitor with Composite Inputs SONY.

- Features both RGB loop-through composite and Y/C video inputs
- High resolution of 500 TV lines
- Features 4:3 and 16:9 switchable aspect ratios



Sony PVM14N6U
Color Video Monitor
CALL FOR BEST PRICE! #57985

20" Trinitron Color Video Monitor SONY.

- Features both loop-through composite and Y/C video inputs
- Flexible video input connectivity
- High resolution of 500 TV lines



Sony PVM20N5U
Color Video Monitor
**CALL FOR
BEST PRICE!**
#962493

Digital Camcorders!



Canon

Delivers outstanding picture quality and highly accurate color reproduction!

Canon GL2 MiniDV Camcorder

The GL2 uses Pixel Shift, a signal processing method used in broadcast TV cameras, to exceed the picture quality achieved by camcorders using nearly twice as many pixels!

**Canon GL2 MiniDV Camcorder
CALL FOR BEST PRICE!** #537667

Digital Camcorders

#968280	Canon ZR40	CALL!
#968282	Canon ZR45MC	CALL!
#968284	Canon ZR50MC	CALL!
#972449	Canon Elura40MC	CALL!
#972458	Canon Elura40MC w/CP-10	CALL!
#962245	Canon Optura100MC	CALL!
#51450	Canon GL1	CALL!
#961437	Canon XL1S	CALL!
#970914	JVC GR-DVM96U	CALL!
#967766	JVC GR-DV920U	CALL!
#972030	JVC Pro GY-DV300U	CALL!
#968957	Panasonic PV-DV702	CALL!
#967926	Panasonic PV-DV852	CALL!
#967928	Panasonic PV-DV952	CALL!
#970427	Sony DCR-TRV50	CALL!
#970422	Sony DCR-TRV27	CALL!
#970419	Sony DCR-TRV25	CALL!
#970416	Sony DCR-TRV18	CALL!
#968521	Sony DCR-PC120BT	CALL!
#959655	Sony DCR-PC9	CALL!
#80283	Sony DCR-VX2000	CALL!
#37986	Sony DCR-TRV900	CALL!
#959075	Sony Pro DSRPD100A	CALL!
#961666	Sony Pro DVRPD150	CALL!
#971641	Sony Pro DSR370ENG19N	CALL!
#971640	Sony Pro DSR370ENG19L	CALL!
#971639	Sony Pro DSR370ENG16N	CALL!
#971638	Sony Pro DSR370ENG16L	CALL!

Visit Our Web Site!

- ✓ Featuring all the hot new hardware and software products from Apple!



And so much more!

- ✓ Fastest overnight delivery!
- ✓ Our 100% Apple Gold Certified, best trained sales staff!
- ✓ \$2 billion in inventory—a selection of over 125,000 products!
- ✓ Custom configuration—we'll build your CPU to your specifications!

MacMall EZ Payment Plan!

Payment terms up to 48 months!

Now you can have low fixed monthly payments on consumer purchases of \$750 or more with the new MacMall EZ Payment Plan. It's fast and easy to apply for, and there are no application fees or prepayment fees. Call your Account Manager today, or apply online! You can complete your purchase in just minutes and have your order tomorrow!

Financing available on approved credit arranged through MBNA America Bank, N.A. Payment does not include shipping charges and sales taxes if applicable. Estimated monthly payment is based on approximate 48-month term at an Annual Percentage Rate (APR) of 14.99%. Your APR may be higher. There are no transaction fees for MacMall purchases billed directly to your account. There is a transaction fee at 3% of the U.S. Dollar amount of each advance check you write (\$5 min/\$30 max), but there is no obligation to use advance checks.

For your best price call 1-800-217-9492 macmall.com

Priority Code: ZMWD2B3

Your tech
people are
asked to do
the impossible
every day.

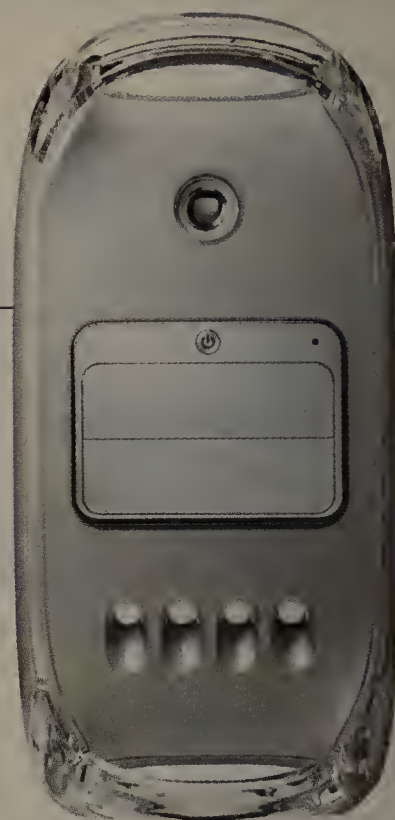
Our job:
make it happen.



Authorized Reseller

Apple® Power Mac™ G4 Series

- ▶ 2 x 867MHz PowerPC™ G4 processors
- ▶ 256KB Level 2 cache
- ▶ Memory: 256MB DDR SDRAM
- ▶ 60GB hard drive
- ▶ Combo DVD/CD-RW drive
- ▶ 56Kbps modem
- ▶ 10/100/1000 Ethernet
- ▶ Mac® OS 9.2/OS X 10.1



\$1695.00 CDW 417019

**2 x 1.0GHz PowerPC™ G4 processors, 80GB hard drive,
DVD-R/CD-RW SuperDrive™**

\$2495.00 CDW 417020



Authorized Reseller

Apple® eMac®

- ▶ 700MHz PowerPC™ G4 processor
- ▶ Memory: 128MB
- ▶ 40GB hard drive
- ▶ Combo CD-RW/DVD drive
- ▶ 56Kbps modem
- ▶ 10/100 Ethernet
- ▶ 17" CRT display
- ▶ Mac OS 9.2/OS X 10.1

\$1095.00 CDW 417032

*CDW carries the full line of Mac® and Mac compatible products. Call your
CDW account manager or visit us at www.cdw.com for more information.*

The Right Technology.
Right Away.™

All pricing subject to change. For all prices and products, CDW® reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes or typographical errors in advertisements. All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers. Please refer to www.cdw.com for additional terms and conditions. Firewire® is a registered trademark of Apple® Computer Corp.

©2002 CDW® Computer Centers, Inc. 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 MW9462 A/B 10/02

Apple® iBook®

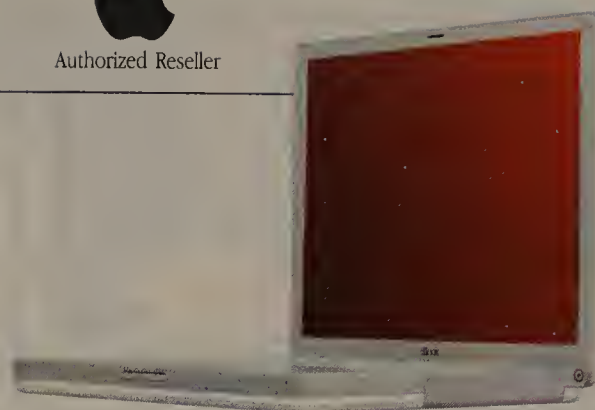


Authorized Reseller

- ▶ 700MHz PowerPC G3 processor
- ▶ 56Kbps modem
- ▶ CD-RW/DVD-ROM combo drive
- ▶ Mac OS X 10.1

700MHz, 128MB memory std.,
20GB hard drive, 12.1" display **\$1495.00** CDW 391663

700MHz, 256MB memory std.,
30GB hard drive, 14.1" display **\$1795.00** CDW 391664



Authorized Reseller

Apple® PowerBook® G4



- ▶ 800MHz PowerPC G4 processor
- ▶ 56Kbps modem
- ▶ Memory: 512MB
- ▶ 10/100/1000 Ethernet
- ▶ 40GB hard drive
- ▶ 15.2" active-matrix display
- ▶ CD-RW/DVD-ROM combo drive
- ▶ Mac OS X 10.1

\$3195.00 CDW 384745

BUSlink DataBanker External FireWire hard drive

BUSlink

- ▶ 120GB, 7200 rpm, IEEE 1394 hard drive
- ▶ Stackable metal alloy case dissipates heat
- ▶ Features a slot for read/write CompactFlash™ or IBM® Micro Drive
- ▶ Retrospect Backup software included

\$329.15 CDW 408777

SimpleTech Bonzai USB Flash Mini-Drive

SimpleTech

- ▶ 128MB
- ▶ Gives you instant access to your files via any computer with a USB port
- ▶ Easy way to store, transfer and carry your legal files
- ▶ Have complete control creating, copying and deleting files

\$96.99 CDW 404746

Apple® iPod™



Authorized Reseller

5GB MP3 player

- ▶ Up to 1000-song capacity
- ▶ Weight: 6.5 oz.
- ▶ 10-hour battery
- ▶ Includes: iTunes 2 software

\$299.00 CDW 339745



**The Right Technology.
Right Away.™**

NEW!

Apple Xserve

1GHz
\$2994⁹⁸

#147878

1GHz Dual
\$3994⁹⁸

#147879

**SPECIAL
CONFIGURATIONS
AVAILABLE - CALL!**

Rack and servers sold separately.

Megahertz, schmegahertz. It's all about gigaflops

The Dual 1GHz Power Mac G4 churns out 15 gigaflops at peak performance by harnessing its sophisticated chip architecture, Velocity Engine™ and a Level 3 cache. That's up to 15 billion floating point operations per second! You'll run Adobe® Photoshop® up to 68% faster than a 2.2GHz Intel® Pentium® processor-powered PC. You'll encode digital video up to 302% faster than a 2 GHz Pentium PC.* In short, you'll leave your PC-using friends – and rivals – choking on your digital dust. That's the Apple way.

*Power Mac G4 system using Apple's iDVD 2 software vs. a PC using Sony's MovieShaker software



Apple Cinema HD Display 23"

\$3494⁹⁸

#139208 Studio 17" \$994.98
#124925 Cinema 22" \$2494.98

#147870



**up to 19" Monitor
FREE**
with purchase
of select Power Mac.
Call for details.

**256MB-512MB
Memory FREE!**
Call for details.

Apple Instant Loan
starting at only
\$38 per month

Apple Instant
Loan starting at only **\$49 per month**



Up to 256MB Memory **FREE!** Call for details.

Apple Power Mac G4

867MHz Dual

- 867MHz dual G4 processors
- L3 Cache – 1MB DDR SRAM per processor
- 256MB PC2100 DDR SDRAM
- 60GB Hard Drive
- Combo DVD-ROM/CD-RW
- Gigabit Ethernet
- NVIDIA GeForce4 MX with 32MB of DDR SDRAM

\$1694⁹⁸

#159217

1GHz Dual

- 1GHz dual G4 processors
- L3 Cache – 1MB DDR SRAM per processor
- 256MB PC2700 DDR SDRAM
- 80GB Hard Drive
- SuperDrive DVD-R/CD-RW
- Gigabit Ethernet
- ATI Radeon 9000 Pro with 64MB of DDR SDRAM

\$2494⁹⁸

#159218

1.25GHz Dual

- 1.25GHz dual G4 processors
- L3 Cache – 2MB DDR SRAM per processor
- 512MB PC2700 DDR SDRAM
- 120GB Hard Drive
- SuperDrive DVD-R/CD-RW
- Gigabit Ethernet
- ATI Radeon 9000 Pro with 64MB of DDR SDRAM

\$3294⁹⁸

#159219

#722601 AppleCare 3-Year Protection Plan (Coverage includes Apple Display when Power Mac and Display are purchased on same invoice.) **\$249.99**

Apple PowerBook G4

667MHz

- 667MHz G4 processor
- 15.2" Display
- 256MB Memory
- 30GB Hard Drive
- Combo CD-RW/DVD
- Gigabit Ethernet
- AirPort Card Ready
- ATI Mobility Radeon 7500

\$2494⁹⁸

#147876

800MHz

- 800MHz G4 processor
- 15.2" Display
- 512MB Memory
- 40GB Hard Drive
- Combo CD-RW/DVD
- Gigabit Ethernet
- AirPort Card Included
- ATI Mobility Radeon 7500

\$3194⁹⁸

#147877

#722604 AppleCare 3-Year Protection Plan – PowerBook G4 **\$349.99**

7 pigment inks keep your photos sharp for posterity

EPSON Stylus Photo 2200 Inkjet Printer

\$699⁹⁹
#992091

Brand-new picture-perfect printer!



EPSON Stylus C42UX Ink Jet Printer

\$499⁹⁹ *After \$30 mfr. mail-in rebate.
#159809 Low Mac Zone price: \$79.99.
Offer good through 10/31/02.

User-friendly digital video backup



Fantom 120GB External FireWire Premier Hard Drive – 7200 rpm
\$249⁹⁹
#154332

Dual options for high-speed connectivity



LaCie 48x12x48x FireWire and USB CD-RW Drive
\$219⁹⁹
#154907

Equipped with 32MB DDR RAM

ATI RADEON 7000 Mac Ed. Dual Monitor Graphic Card

\$113⁹⁹
#948738

Outstanding image quality with reduced glare



Sony CPD-G520 21" Flat Screen Trinitron Mon.
~~**\$799⁹⁹**~~
#763385

The professional's choice for digital video



Canon GL2 3CCD Digital Camcorder
\$2799⁹⁸
#153297

Don't forget to load up on video tape



EMTEC Mini DV Tape 10-Pack
\$29⁹⁶
#152657

And don't forget your **AppleCare**

AppleCare
Protection Plan

Starting at **\$149⁹⁹**
Call for details.

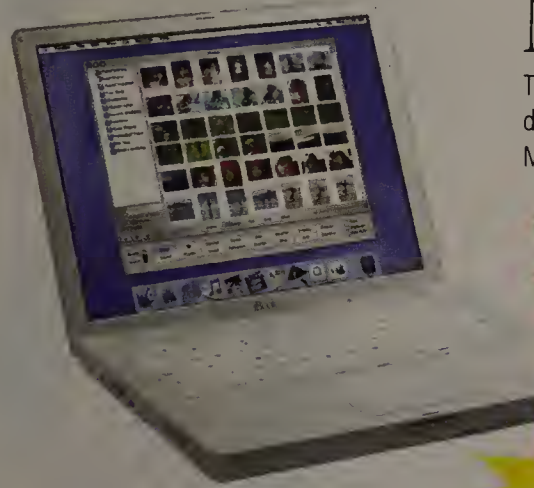
NO SURCHARGE ON CREDIT CARDS

Credit cards are not charged until the order is shipped. Most products ship the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Special orders may require special shipping and handling charges. Call for international shipping rates. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand. Not responsible for typographical errors. All products sold by Zones, Inc. are third party products and are subject to the warranties & representations of the applicable manufacturers. ©2002 Zones, Inc. All rights reserved. Unauthorized duplication is a violation of applicable laws. Apple, the Apple logo, Mac, Power Mac, PowerBook, iMac, iBook, AirPort, and FireWire are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. SuperDrive, iPod and eMac are trademarks of Apple Computer, Inc. AppleCare is a registered service mark of Apple Computer, Inc. PowerPC is a trademark of International Business Machines Corporation, used under license therefrom.

eMac G4 and Price Drops!

The Modern Office – Now Fully Portable

People may love their work, but they rarely love their cubicle. Move your workforce to iBook or PowerBooks, however, and cubicle culture becomes a relic of the 20th Century. With the optional AirPort Card and Base Station, iBook and PowerBook users can move seamlessly from working at their desk to collaborating with co-workers in a conference room, all while connected to the Internet, their calendars, and their ability to be productive.



Apple Instant Loan starting at only **\$27** per month

NEW eMac G4 The most affordable G4 system ever!

The eMac comes complete with a 17-inch flat CRT display and a space-saving, all-in-one design that fits right in your home. Plus award-winning digital lifestyle applications and Mac OS X, Apple's rock-solid operating system.

Starting at **\$994⁹⁸**

17"
Flat CRT

FREE
256MB RAM!

NOW
with Super Drive!

iMac G4 New 17" flat screen

Exceptional G4 power, grace and fun. Effortlessly adjust the new iMac's stunning 17" LCD flat screen height or angle with the touch of a finger.

NOW
In-Stock!

Apple Instant Loan starting at only **\$29** per month

Apple iBook G3

128MB-256MB Memory **FREE!** Call for details.

600MHz

- 600MHz G3 processor
- 12.1" TFT Display
- 128MB Memory
- 20GB Hard Drive
- CD-ROM Drive
- 10/100 Ethernet
- AirPort Card Ready
- ATI Mobility Radeon

\$1194⁹⁸

#147880

#722603 AppleCare 3-Year Protection Plan – iBook \$249.99

700MHz

- 700MHz G3 processor
- 12.1" TFT Display
- 128MB Memory
- 20GB Hard Drive
- Combo CD-RW/DVD
- 10/100 Ethernet
- AirPort Card Ready
- ATI Mobility Radeon

\$1494⁹⁸

#147881

700MHz

- 700MHz G3 processor
- 14.1" TFT Display
- 256MB Memory
- 30GB Hard Drive
- Combo CD-RW/DVD
- 10/100 Ethernet
- AirPort Card Ready
- ATI Mobility Radeon

\$1794⁹⁸

#147882

700MHz

- 700MHz G4 processor
- 15" LCD
- 128MB Memory
- 40GB Hard Drive
- CD-RW Drive
- NVIDIA GeForce2 MX 32MB
- Apple Pro Speakers optional

\$1294⁹⁸

#147871

#722602 AppleCare 3-Year Protection Plan – iMac/eMac \$149.99

700MHz

- 700MHz G4 processor
- 15" LCD
- 256MB Memory
- 40GB Hard Drive
- Combo DVD-ROM/CD-RW
- NVIDIA GeForce2 MX 32MB
- Apple Pro Speakers

\$1494⁹⁸

#147872

800MHz

- 800MHz G4 processor
- 15" LCD
- 256MB Memory
- 60GB Hard Drive
- SuperDrive DVD-R/CD-RW
- NVIDIA GeForce2 MX 32MB
- Apple Pro Speakers

\$1794⁹⁸

#147873

800MHz

- 800MHz G4 processor
- 17" Widescreen LCD
- 256MB Memory
- 80GB Hard Drive
- SuperDrive DVD-R/CD-RW
- NVIDIA GeForce4 MX 32MB
- Apple Pro Speakers

\$1994⁹⁸

#159213

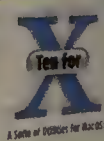


Easy, fast data protection
Retrospect Express

\$43⁹⁹

#964631

\$15 Rebate!



Cool utilities for Mac OS X
Ten for X

\$29⁹⁹*

#1001499

*After \$15 mfr. mail-in rebate with purchase of other Aladdin software or Mac OS X. Or save \$10 via rebate for first-time buyers of Ten for X. Low Mac Zone price: \$45.99. Offer good through 3/31/03.

\$20 Rebate!

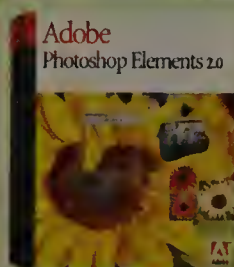


Quicken 2003 for Mac

\$38⁹⁹*

#158947

*After \$20 mfr. mail-in upgrade. Low Mac Zone price: \$58.99. Offer good through 11/30/02.



Easy, yet powerful
Adobe Photoshop Elements 2.0

\$86⁹⁹

#158479



Toast with Jam

\$159⁹⁷

#141946

Mac Zone Exclusive!



Save \$50

\$134⁹⁷*

#159415

Apple® Mac® OS X v10.2 with Ten for X bundle

*After \$20 Mac Zone mail-in rebate. Low Mac Zone price: \$154.97. While supplies last. When compared to product purchased separately.

FREE Memory Offer: Up to 512MB free memory with select Apple computers and professional \$40 installation purchase. Allow up to one day for installation. Offer subject to change due to memory price volatility. Call for latest offers. Offer good while supplies last. Not valid with any other Mac Zone offers.

Netflix Offer Details: Free trial with any Mac Zone purchase. Offer valid in the 50 United States and its territories and possessions only. Offer expires 12/01/2002 and cannot be combined with any other offer. Limit one per household. First-time customers only. Internet access and valid credit or debit card required to redeem offer. Go to maczone.com for details.

Corporate bids welcome!
Fax to 1-425-430-3420

A NASDAQ® COMPANY Ticker Symbol: ZONS

www.macworld.com

Source Code
MW112

Order by Phone
1.800.436.0606

Choose 72 at www.macworld.com/getinfo

Order Online Today

www.maczone.com

November 2002

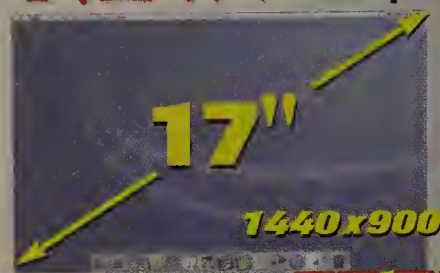
MACWORLD

101



FREE Epson Printer & RA

NEW! 17" iMac G4
\$1994
800MHz



#552070

FREE!
512MB RAM
& Free* Epson
C42UX Printer
on all G4 iMacs

Don't Forget!
Apple Care Protection Plan
3 Year Protection
For iMacs
Only
\$149
#951378

*\$39.99 Installation Fee for FREE Memory. Offer Expires 10/31/02 or While Supplies Last. Free Memory after \$49.95 Mail in Rebate. †Free printer is after Mail-in Rebates from Epson and ClubMac when purchased with any Apple CPU. Price before rebates is \$79 Offer Valid from 10/01/02-10/31/02 or While Supplies Last.

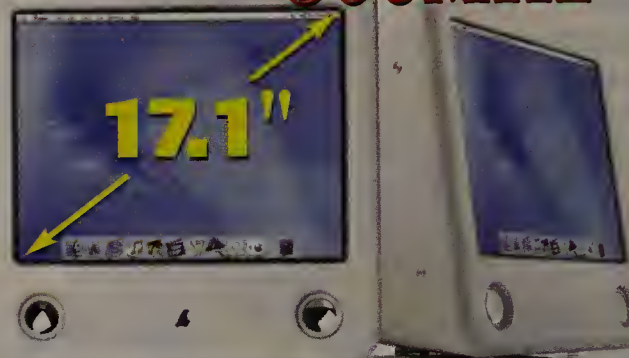
#643251	700MHz	15" Screen	128mb	40GB HD	CDRW		\$1294
#643253	700MHz	15" Screen	256mb	40GB HD	DVD Combo	Pro Speakers	\$1494
#643255	800MHz	15" Screen	256mb	60GB HD	DVD-R	Pro Speakers	\$1794
#552070	800MHz	17" Screen	256mb	80GB HD	DVD-R	Pro Speakers	\$1994

iMac 600MHz 40GB
FREE!
128MB RAM
& Free* Epson
C42UX Printer
on all G4 iMacs
All-In-One
Only
\$794

*\$39.99 Installation Fee Applies. Offer Ends 10/31/02.

#552073	Snow	600MHz	128MB	40GB	24xCD	ATI Rage 128	\$794
---------	------	--------	-------	------	-------	--------------	--------------

eMac Now Up to **800MHz** Starting at **\$1094**



Up to 60GB Hard Drive
with SuperDrive

FREE!
256MB
RAM
& Free
Epson
Printer
with All eMacs!

*\$39.99 Installation Fee for FREE Memory. Offer Expires 10/31/02 or While Supplies Last.

#590885	700MHz	128MB	40GB	DVD/CD-RW	NVIDIA GeForce2MX	\$1094
#590887	800MHz	256MB	60GB	SuperDrive	NVIDIA GeForce2MX	\$1494

iBook 700MHz

14.1" iBook **\$1794**

14.1" iBook **\$1194**
as low as

*\$39.99 Installation Fee for FREE Memory. Free Memory After \$49.95 Mail-in Rebate. Offer Expires 10/31/02 or While Supplies Last.

#642972	600MHz	12.1"	128MB of RAM	20GB HD	CD-ROM	\$1194
#642975	700MHz	12.1"	128MB of RAM	20GB HD	DVD Combo	\$1494
#542444	700MHz	14.1"	256MB of RAM	30GB HD	DVD Combo	\$1794

FREE!
Carrying
Case
& Free*
Epson
Printer
with 14.1"
iBooks!

FREE!
256MB
RAM
& Free*
Epson
Printer
with All 12.1" iBooks!

Accessories

#203778	Targus Universal Notebook Case	\$29.99
#47509	Keyspan USB To Twin Serial Adapter	\$69.99
#354862	Apple Extra Battery Powerbook G4 Titanium	\$129.00
#975672	Belkin Regulator Pro Gold USB 650 UPS	\$139.99
#961874	Photo Control Docking Station/G4 Titanium	\$199.99
#30726	APC Back UPS Pro 650 Beige	\$239.99

Audio/Video Peripherals

#972281	Apple Apple Pro Speakers (White Insides)	\$59.00
#951562	Sonnet Tango Adapter Card 2 Firewire/2 USB Port	\$89.99
#369724	ATI Radeon 7000 Mac PCI 32MB NTSC	\$118.99
#967178	ATI Radeon 8500 Mac AGP 64MB NTSC	\$226.99
#953115	Eskape Lab MyVideo USB Video Capture	\$149.00
#952775	Harman Kardon Soundstick 3 Piece USB Speakers	\$178.99
#944700	Dazzle Multimedia Hollywood: 1394 DV (Mac)	\$264.94
#961764	Formac Studio-Analog/DV Converter with TV Tuner	\$389.94
#566453	Formac Studio-Analog/DV Converter	\$269.00

Communications

#863922	Global Village Teleport 56K V.92 Ext Serial Modem	\$72.99
#28300	US Robotics 56K V.90 Ext Mac Modem	\$81.99
#862912	Zoom V.90 56K Ext USB Voice Modem	\$97.99

SONNET Encore/St
G4 800MHz



\$499⁹⁵

CPU Accelerators

#74264	Sonnet Encore G4 500/250MHz w/ 1Mb Cache	\$299.95
#59435	Sonnet Crescendo G4 450/200MHz 1Mb Cache	\$299.95
#961651	Sonnet Harmoni G3 500/Firewire Card For Imac A-D	\$299.95
#539715	Sonnet Encore/St G4 800MHz	\$499.95
#540876	Sonnet Encore/St G4 1Ghz	\$699.95

Nikon Coolpix 2500
ELECTRONIC IMAGING

\$299



Digital Camera

#537920	Nikon Coolpix 2000 2.0MP 3X/2.5X USB	\$249.00
#969346	Nikon Coolpix 2500 2.0MP 3X/4X 16Mb CF USB	\$299.00
#974515	Nikon Coolpix 4500 4.0MP 4X/4X USB	\$699.00
#974509	Nikon Coolpix 5700 5.0MP 8X/4X 16Mb CF	\$1,199.00
#211448	Fuji Photo Finepix 2600 2.1MP 3X Zoom	\$239.00
#964552	Canon Powershot S30 3.2MP 3X 16Mb CF USB	\$459.00
#962374	Canon Powershot G2 4MP 3X 32Mb Cf USB	\$699.00

Input

#953969	Apple Apple Pro USB Optical Mouse	\$59.00
#953968	Apple Apple Pro USB Keyboard	\$59.00
#960688	Contour Shuttle Pro Multimedia Jog/Shuttle Cont	\$89.00
#961944	Wacom Steel Graphire2 4X5 USB Tablet W/Pen	\$99.00
#962688	Wacom Intuos2 6X8 W/Pen & 2D Mouse-USB	\$349.99
#962689	Wacom Intuos2 9X12 W/Pen & 4D Mouse-USB	\$469.99

LACIE 22" Electron
Blue III w/hood

\$999

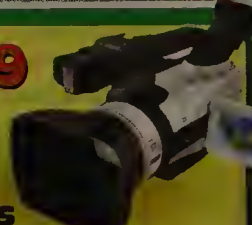


Displays

#960097	Apple 17" LCD Studio Display	\$994.00
#951070	Apple 22" LCD Cinema Display	\$2,494.00
#970382	Apple 23" LCD Cinema HD Display	\$3,494.00
#363234	Sony E540 21" .24mm 1900X1440	\$559.00
#947137	Sony Multiscan G520 21" .24mm	\$744.00
#554331	NEC DP2070SB-BK 22" .24mm 2048X1536	\$739.00
#545920	Mitsubishi FP2141SB-BK 22" .24mm 2048X1536	\$799.00
#962149	LaCie Electronblue 19" III 1600X1200 76Hz	\$399.00
#962863	LaCie 22inch Electron Blue III W/Hood	\$999.00
#541244	Formac Gallery 1740 17.4" LCD	\$879.00

Canon \$2799

GL-2 Mini DV
Camcorder



Digital Camcorders

#968280	Canon ZR40 Mini DV Camcorder	\$499.95
#968282	Canon ZR45MC Mini DV Camcorder	\$574.50
#968284	Canon ZR50MC Mini DV Camcorder	\$698.00
#537667	Canon GL2 Mini DV Camcorder	\$2,799.00
#968521	Sony DCR-PC 120BT Mini DV Camcorder	\$1,829.00
#961666	Sony DSR-PD 150 Digital Camcorder	\$3,499.00

Inkjet Printers

#799122	Epson Stylus Color C60	\$79.00
#462793	Epson Stylus Photo 820 Silver	\$99.00
#193680	Epson Stylus Color C80	\$149.00
#956514	Epson Stylus Color Photo 1280	\$499.00
#37245	Epson Stylus Color 3000 13"X19"	\$995.00
#74261	HP Deskjet 1220C PS Color	\$479.00

Projectors

#794651	In Focus LP280 1000 Lumen SVGA 5.7lbs	\$1,599.00
#956645	In Focus LP130 1100 Lumen XGA 3lbs	\$2,999.00
#873442	Proxima X350 1100 Lumen XGA 3.5lbs	\$3,199.00
#367270	Epson Powerlite 51C 1200 Lumen SVGA 6.8lbs	\$1,699.00
#453620	Epson Powerlite 730C 2000 Lumen XGA 4.3lbs	\$3,999.00

Networking

#874476	Belkin 4 Port Firewire Hub	\$67.99
#957576	Belkin Firewire 6-Port Hub	\$79.99
#35839	Asante Asantetalk 10BT To LocalTalk Connection	\$84.99
#962119	Apple Airport Card	\$99.00
#965277	Apple Airport Base Station	\$294.00
#778846	Netgear Wireless Cable/DSL Router	\$129.99
#771469	Macsense Xrouter Aero Wireless Cable/DSL Router	\$219.99

ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS. WARRANTIES: All items manufactured by ClubMac should be returned to ClubMac for warranty repair. Refer to manufacturer's warranty for Non-ClubMac products. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. RETURNS: ClubMac extends all other manufacturer's return policies to its customers. Call for a Return Authorization (RA) number! Any product that is returned WITHOUT an RA# will be refused. NOTE: Non-ClubMac products may be returned for replacement only. Apple Branded Products are not returnable. If you experience problems with your Apple purchase contact Apple 1-800-506-7078.

www.clubmac.com

M with Mac Purchases!



New PowerBook G4

Now Up To **800MHz**

Starting at

\$2494

FREE!*

512MB Ram, Iomega Zip Drive
or Airport Card



Free * Airport card or 512MB Memory with PB 667MHz Model listed on this page. Free Zip 100MB VL with PB 800MHz Model listed on this page. *\$39.99 Installation Fee Applies for Airport Card or Memory. Free memory is After \$49.95 Mail-in Rebate. †Free printer is after Mail-in Rebates from Epson and ClubMac when purchased with any Apple CPU. Price before rebates is \$79. Offer Valid from 10/01/02-10/31/02 or while supplies last.

#643249	667MHz	14.1"	256MB of RAM	30GB HD	DVD/CD-RW	\$2494
#542442	800MHz	14.1"	512MB of RAM	40GB HD	DVD/CD-RW Airport Card	\$3194

New Power Mac G4

Faster!

Now Up to
Dual Processor
1.25GHz!

Starting at

\$1694

- Up to 1.25GHz Dual Processor G4
- Up to 512MB RAM (expandable to 2GB)
- Up to 120GB HD
- Combo Drive or Super Drive

Apple Care Protection Plan

3 Year Protection For Power Macs

Only **\$249**

#590879	867MHzDP	256MB of RAM	60GB HD	DVD/CD-RW	\$1694
#590881	1GHzMHzDP	256MB of RAM	80GB HD	CD-RW/DVD-R	\$2494
#590883	1.25GHzDP	512MB of RAM	120GB HD	CD-RW/DVD-R	\$3294

FREE!*
512MB RAM & Free* Epson Printer on All Power Macs!

*\$39.99 Installation for Free Memory Free 512MB with 867MHz Model. Free Memory is After \$49.95 Mail-in Rebate. Free 512MB with 1GHz and 1.25GHz DP Models. †Free printer is after Mail-in Rebates from Epson and ClubMac when purchased with any Apple CPU. Price before rebates is \$79. Offer Valid from 10/01/02-10/31/02 or While Supplies Last.

hp LaserJet 4100N Network Printer

\$1465

Laser Printers

#972923	Minolta Pagepro 1250E 17ppm 16MB	\$294.99
#781206	Brother HI-1470N 15ppm	\$498.99
#958348	HP LaserJet 1200SE 15ppm USB	\$399.00
#957974	HP LaserJet 2200DN 19ppm USB	\$1,098.00
#948807	HP LaserJet 4100N Network Printer 25ppm	\$1,465.00

EPSON Perfection 2450 Photo Scanner

\$399.99

Scanners

#799333	Epson Perfection 1650 Photo 1600X3200	\$179.00
#329807	Epson Perfection 2450 Photo Scanner	\$399.99
#552287	Smartdisk Smartscan 2700 Film Scanner	\$219.99
#332059	Microtek Scanmaker 4800 2400X1200	\$89.99
#952795	Microtek Scanmaker 8700 Pro 42Bit	\$799.99
#956698	Nikon Super Coolscan 4000 ED Film Scanner	\$1,549.00

Software-Games

#358851	Aspyr Spiderman	\$28.99
#968435	Aspyr Sims Hot Date Expansion Pack	\$29.99
#965778	Aspyr Harry Potter And The Sorcerer's Stone	\$29.99
#82299	Aspyr The Sims	\$44.99
#452449	Aspyr Medal Of Honor: Allied Assault	\$48.99
#367691	Aspyr Return To Castle Wolfenstein	\$48.99
#430979	Aspyr Star Wars: Galactic Battlegrounds	\$49.99
#967070	Infogrames Civilization 3	\$39.99
#971491	Havas Warcraft III: Reign Of Chaos	\$54.95

Mac OS X v10.2

\$98.99*

*After \$21 Mail-in Rebate

Software-Business

#972337	Apple Appleworks 6.2.4	\$77.99
#551926	Apple Mac OS X V10.2	98.95*
#362192	Connectix Virtual PC 5 W/Windows 2000	\$228.94
#537929	Filemaker Pro 6.0 Mac Upgrade	\$139.99†
#501512	Filemaker Pro 6.0 Mac	\$275.99
#963094	MYOB AccountEdge 2	\$235.00
#208616	Microsoft Office V. X For Mac Upgrade	\$268.94
#208615	Microsoft Office Mac V.X Full Version	\$444.99

†FileMaker Pro 6 Upgrade requires qualifying previous versions

Adobe Photoshop 7.0 Upgrade

\$134.94

Software-Graphics

#968964	Adobe Photoshop 7.0 Upgrade	\$134.94
#963236	Adobe Illustrator 10 Upgrade	\$139.94
#968095	Adobe Photoshop 7.0 Full Version	\$588.99
#447711	Adobe Design Collection 6.0	\$999.00
#970239	Quark Upgrade Quarkxpress 5.0 From 4.X	\$299.00
#965797	Quark Quarkxpress 5.0	\$799.94
#971076	Apple DVD Studio Pro 1.5	\$968.99
#965830	Apple Final Cut Pro 3	\$995.00



NO SURCHARGE

roxio Toast 5 Titanium

\$79.99

Software-Utilities

#56470	Alsoft Diskwarrior 2.1	\$63.99
#795108	Dataviz MacLink Plus Deluxe 13.0	\$88.89
#372248	Symantec Norton Antivirus 8.0	\$64.99
#374767	Symantec Norton Utilities 7.0	\$94.99
#374768	Symantec Norton Systemworks 2.0	\$119.99
#975774	Roxio Toast 5 Titanium	\$79.99

GVP \$449

New!

200GB External FireWire Hard Drive Storage

#505570	GVP 80GB External FireWire HD 7200	\$169.00
#505565	GVP 120GB External FireWire HD 7200	\$229.00
#641667	GVP 200GB External FireWire HD 7200	\$449.00
#505564	GVP 40X/12X/48X Ext FireWire CDRW	\$169.00
#797415	Seagate Barracuda ATA IV 80GB HD ATA/100 7200	\$99.99
#945652	Iomega Zip 250MB USB Powered Drive	\$149.95
#492261	Iomega Zip 750MB USB Powered Drive	\$179.99
#962073	Ezquest Cobra+ 80GB FireWire Ext HD 7200rpm	\$199.00

SOURCE CODE: ZMWC232

ClubMac®

1-800-260-8549

**24 hours
7 days a week**

E-Mail: cmsales@clubmac.com
Local & International Sales: (949) 768-8130
24-Hour Fax: (949) 768-9354

MAKE APPLE® THE CENTER OF YOUR DIGITAL WORLD!

www.JandR.com

NOW
Faster & Easier

America Online Keyword: J&R

MP3

Apple® iPod™ 5GB Portable MP3 Player For Mac®

- Ultra-slim, doubles as a FireWire® disk for files & applications •Holds up to 1,000 songs •2" LCO with white backlight
- Browse your music with easy-to-use scroll wheel
- Over 20 EQ presets •Store up to 1,000 contacts
- Seamless integration with your Mac®
- Rechargeable lithium polymer battery provides up to 10 hours of continuous playtime
- Only 6.5 oz. •Includes earphones, AC adapter, FireWire® cable & iTunes™ 3

\$299.99 (APP MB513LL/B)

Apple® iPad™ 10GB Portable MP3 Player For Mac®

(APP MB737LL/A) **\$399.99**

Apple® iPod™ 20GB Portable MP3 Player For Mac®

(APP MB738LL/A) **\$499.99**

Hard Drive

LaCie External FireWire® Hard Drive

- 7200 rpm rotational speed •2MB buffer
- Ideal for professionals and home users, and for various applications such as databases, desktop publishing, digital content creation and digital audio/video
- FireWire® interface
- For PC/Mac

40GB Hard Drive

\$169.99 (LAC 30050B)

60GB Hard Drive

\$199.99 (LAC 300509)

80GB Hard Drive

\$219.99 (LAC 300510)

120GB Hard Drive

\$279.99 (LAC 300511)

HOME OFFICE

Palm® m105 Handheld

- Store appointments, addresses & to-dos •Exchange/backup data with your PC/Mac with 1-touch synchronization •6MB RAM

\$99.99 (PLM B0701U)

Brother MFC-5100c 5-In-1 Color Multi-Function Center

- Full color fax, inkjet printer, zoom copier, scanner & PC fax •Inkjet printing up to 2400 x 1200 dpi
- Fax broadcasting from your PC •Windows/Mac

\$279.99 - \$300.00

Mail-In Rebate thru 11/30/02

\$249.99

(BRT MFC5100C)

APPLE®

Apple eMac™ G4/700 128/40GB/Combo Drive All-In-One Computer

- 700MHz PowerPC™ G4 processor •128MB SDRAM
- 40GB Ultra ATA drive •DVD/CD-RW Combo
- 56K modem •NVIDIA GeForce2 MX graphics with 32MB DDR RAM •10/100 BaseT Ethernet
- 2 FireWire®/5-USB ports •17" flat CRT display
- Built-in speakers •Mac® OS X & OS 9
- iMovie™ 2, iTunes™ 2, iPhoto™ & more

\$1099.99

(APP MB511LL/A)

3-Year AppleCare® Protection Plan for eMac® Computers

(APP M7B12LL/B) **\$149.99**

APPLE®

Apple iBook® G3/700 128/20GB/Combo Notebook Computer

- 700MHz PowerPC™ G3 processor •12.1" TFT XGA
- 128MB SDRAM •20GB HD •DVD-ROM/CD-RW combo
- ATI Mobility RADEON graphics with 16MB VRAM
- 56K max. modem •10/100 Ethernet
- 1 FireWire®/2-USB ports •VGA/S/Composite-video out
- 4.9 lbs. •Mac® OS 9 & Mac® OS X (v10.1)
- iTunes™, iPhoto™ & iMovie™ 2

\$1499.99 (APP MB602LL/A)

3-Year AppleCare® Protection Plan for iBook® G3 Computers

(APP MB094LL/A) **\$249.99**

APPLE®

Apple® G4 iMac® 800 256/80GB/SuperDrive™ All-In-One Computer

- 800MHz PowerPC™ G4 processor •256MB SDRAM
- 80GB hard drive •SuperDrive™ (DVD-R/CD-RW)
- NVIDIA GeForce4 MX graphics w/32MB SDRAM
- 56K modem •10/100 Ethernet
- 17" widescreen flat-panel display
- 2 FireWire®/5-USB ports •Mac® OS 9.2/OS X (v10.1)
- iTunes™, iMovie™ 2 & more

\$1999.99 (APP MB512LL/A)

3-Year AppleCare® Protection Plan for iMac® G4 Computers

(APP M7B12LL/B) **\$149.99**

APPLE®

Apple® PowerBook® G4/800 512/40GB/Combo/GigE/AirPort®

- 15.2" TFT •800MHz PowerPC™ G4
- 512MB RAM •40GB HD •AirPort™ card
- DVD-ROM/CD-RW combo •V.90 modem
- ATI Mobility Radeon 7500 graphics with 32MB DDR VRAM
- 10/100/1000 Ethernet
- 1 FireWire®/2-USB ports
- DVI/S-video out •5.4 lbs.
- Mac® OS 9.2/OS X v10.1

\$3199.99

(APP MB592LL/A)

3-Year AppleCare® Protection Plan for PowerBook® G4 Computers

(APP MB109LL/A) **\$299.99**

MONITORS

NEC MultiSync® LCD1850E

18.1" Thin-Frame TFT Color LCD Monitor

- 18.1" VIS •XtraView 160° wide-angle
- Up to 1280 x 1024 res. •0.28mm pixel pitch
- 350:1 contrast ratio •White or black •Win/Mac

\$799.99

(NEC LC01850E) White (NEC LC01850E-8K) Black

Sony SDM-X82 18" DELUXEPRO™

Flat Panel Digital/Analog LCD Color Monitor

- Up to 1280 x 1024 res. •0.208mm pixel pitch •400:1 contrast ratio
- Stereo speakers •For Windows/Mac •Black finish

(SON SDM-X82/B) **\$1099.99-\$100 Mail-In Rebate = \$999.99**

Carnea CT1700 17" LCD TFT Monitor

- 1280 x 1024 max. res. •0.264 pixel pitch •RGB analog input
- 450:1 contrast ratio

(COR CT1700) **\$549.99**

DIGITAL CAMERAS

Nikon COOLPIX 5700

Digital Camera

- 5.0 megapixels •Bx-optical/4x-digital zoom •ED lens
- Top shutter speed of 1/4,000 sec
- Continuous shooting mode
- 1.5" LCD monitor •RAW image data recording •Best shot Selector
- USB interface •Windows/Mac compatible

\$1199.99

(NKN COOLPIX5700)

Fuji FinePix F601 Digital Camera

- 3.1MP CCO (6.0 MP output) •3x opt./4.4x dig. zoom •1.5" color LCD •16MB SmartMedia™
- Continuous shooting/digital movie modes •USB •Windows/Mac

(FUJ FINEPIX601) **\$499.99**

Canon PowerShot G2 Digital Zoom Camera Kit

- 4.0 MP •3x-optical/3.6x-digital zoom •12 shooting modes •1.8" LCD
- Adobe® Photoshop®, 32MB CompactFlash®, battery & remote

(CAN G2/KIT) **\$649.99**

DIGITAL CAMCORDERS

Sony DCR-IP5

MICROMV™ Handycam®

- MICROMV format- outstanding video quality in an incredibly compact & portable design •6BOK pixel CCO
- 2.5" SwivelScreen™ •Carl Zeiss™
- Voigt Sannar lens •10x-optical/120x-dig. zoom
- MPEG2 compression •Color viewfinder
- Super SteadyShot™ •16.9 wide mode

\$999.99

(SON DCRIP5)

Panasonic® PV-DV851 Digital Camcorder

- Mini DV •Mega pixel CCD •10x-opt./100x-dig. zoom •2.5" color LCD
- Color viewfinder •BMB SD card •PhotoShot™ digital still camera •LINK

(PAN PVDV851) **\$649.99**

Canon ZR50MC MiniDV Digital Camcorder

- 1/6" 460K pixel CCD •2.5" LCD •22x-optical/440x-dig. zoom
- SD/MMC compatibility for still images
- Color night shooting •For PC/Mac

(CAN ZR50MC) **\$699.99**

TO ORDER TOLL FREE & RECEIVE OUR FREE CATALOGUE:

800-221-8180

Park Row • New York, NY 10038 • Fax: 800-232-4432

Not responsible for typographical or pictorial errors. Merchandise is brand new, factory-fresh & 100% guaranteed. *Except where noted, quantities may be limited.

Since 1987



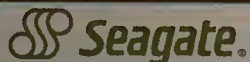
Award Winning Service

We've been satisfying customers for nearly 15 years!

www.megahaus.com/mac



HARD DRIVES



ULTRA SCSI					INT.
18.4GB	7200	2MB	ST318418N		\$169
36.9GB	7200	2MB	ST336918N		\$245
ULTRA 160 SCSI					
18.4GB	7200	2MB	ST318438LW		\$155
18.4GB	10,000	4MB	ST318406LW		\$179
18.4GB	15,000	8MB	ST318452LW		\$249
36.7GB	7200	2MB	ST336938LW		\$229
36.7GB	10,000	4MB	ST336706LW		\$269
36.7GB	15,000	8MB	ST336752LW		\$399
73.4GB	10,000	4MB	ST373405LW		\$609
181.6GB	7200	16MB	ST181677LWV		\$1389
IDE ULTRA ATA/100					
20.0GB	5400	2MB	ST320410A		\$69
40.0GB	5400	2MB	ST340810A		\$78
40.8GB	7200	2MB	ST340016A		\$83
60.0GB	7200	2MB	ST360021A		\$98
80.0GB	7200	2MB	ST380021A		\$115

Visit our website at www.megohous.com/seagate



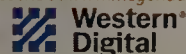
IDE ULTRA ATA/100					
40.0GB	5400	2MB	4D040H2		\$76
60.0GB	5400	2MB	4D060H3		\$93
81.9GB	5400	2MB	4D080H4		\$110
IDE ULTRA ATA/133					
20.0GB	7200	2MB	6L020J1		\$75
40.0GB	7200	2MB	6L040J2		\$85
60.0GB	7200	2MB	6L060J3		\$99
80.0GB	7200	2MB	6L080J4		\$119
120.0GB	5400	2MB	4G120H6		\$175
160.0GB	5400	2MB	4G160H8		\$255
FLUID BEARING HARD DRIVE					
20.0GB	7200	2MB	6L020L1		\$78
40.0GB	7200	2MB	6L040L2		\$87
60.0GB	7200	2MB	6L060L3		\$109
80.0GB	7200	2MB	6L080L4		\$125

Visit our website at www.megohous.com/max



ULTRA 160 SCSI					
18.3GB	10,000	4MB	07N6350		\$175
36.7GB	10,000	4MB	07N6340		\$269
73.4GB	10,000	4MB	07N6300		\$695
18.3GB	15,000	4MB	07N6800		\$255
33.7GB	15,000	4MB	07N6801		\$419
IDE ULTRA ATA/100					
40.0GB	7200	2MB	07N9208		\$87
60.0GB	7200	2MB	07N9209		\$105
80.0GB	7200	2MB	07N9210		\$120
120.0GB	7200	2MB	07N9219		\$195
ULTRA 320 SCSI					
73.4GB	10,000	8MB	08K0332		\$675
146.8GB	10,000	8MB	08K0322		\$1195

Visit our website at www.megohaus.com/ibm



IDE ULTRA ATA/100					
20.0GB	5400	2MB	WD200EB		\$69
20.0GB	7200	2MB	WD200BB		\$75
40.0GB	5400	2MB	WD400EB		\$78
40.0GB	7200	2MB	WD400BB		\$85
60.0GB	5400	2MB	WD600AB		\$97
60.0GB	7200	2MB	WD600BB		\$105
80.0GB	7200	2MB	WD800BB		\$119
80.0GB	7200	8MB	WD800JB		\$129
100.0GB	7200	8MB	WD1000BB8		\$185
120.0GB	7200	2MB	WD1200BB		\$189
120.0GB	7200	8MB	WD1200JB		\$215
200.0GB	7200	2MB	WD2000BB		\$419
200.0GB	7200	8MB	WD2000JB		\$459

Visit our website at www.megohaus.com/wd



ULTRA 160 SCSI					
18.4GB	10,000	8MB	MAN3184MP		\$165
36.7GB	10,000	8MB	MAN3367MP		\$275
73.5GB	10,000	8MB	MAN3735MP		\$599
ULTRA 160 FIBRE CHANNEL					
18.4GB	10,000	8MB	MAN3184FC		\$165
36.7GB	10,000	8MB	MAN3367FC		\$275
73.5GB	10,000	8MB	MAN3735FC		\$599

Visit our website at www.megahaus.com/fuj

CALL US TO MAKE ANY OF THE ABOVE DRIVES EXTERNAL.

2.5 IDE LAPTOP

20.0GB	9.5mm	Toshiba	MK2018GAS	\$97
30.0GB	9.5mm	Toshiba	MK3017GAP	\$138
40.0GB	9.5mm	Toshiba	MK4018GAP	\$175
60.0GB	9.5mm	Toshiba	MK6021GAS	\$349
20.0GB	9.5mm	IBM	07N832S	\$98
30.0GB	9.5mm	IBM	07N8326	\$145
40.0GB	9.5mm	IBM	07N8327	\$175
60.0GB	12.5mm	IBM	07N8328	\$409
10.0GB	9.5mm	Hitachi	DK23CA-10F	\$86
20.0GB	9.5mm	Hitachi	DK23DA-20F	\$99
30.0GB	9.5mm	Hitachi	DK23DA-30F	\$150
40.0GB	9.5mm	Hitachi	DK23DA-40F	\$175

10.0GB	9.5mm	Fujitsu	MHR2010AT	\$85
20.0GB	9.5mm	Fujitsu	MHR2020AT	\$95
30.0GB	9.5mm	Fujitsu	MHR2030AT	\$142
40.0GB	9.5mm	Fujitsu	MHR2040AT	\$170

USB DRIVES

3.5 HARD DRIVES W/CASE (5400RPM)				
20.0GB	USB-20GB			\$169
40.0GB	USB-40GB			\$185
60.0GB	USB-60GB			\$199
80.0GB	USB-80GB			\$229
120.0GB	USB120GB			\$329
160.0GB	USB160GB			\$395

FIREWIRE DRIVES

3.5 HARD DRIVES W/CASE (5400 RPM)				
20.0GB	FW-20GBS4			\$185
40.0GB	FW-40GBS4			\$199
60.0GB	FW-60GBS4			\$235
80.0GB	FW-80GBS4			\$259
120.0GB	FW120GBS4			\$355
160.0GB	FW160GBS4			\$419

3.5 HARD DRIVES W/CASE (7200 RPM)				
20.0GB	FW-20GB72			\$195
40.0GB	FW-40GB72			\$209
60.0GB	FW-60GB72			\$239
80.0GB	FW-80GB72			\$275
120.0GB	FW120GB72			\$369

CONTROLLERS

FIREWIRE			
WD 1394 PCI Card	WDAD002RNW		\$49
WD 1394 CardBus	WDAD003RNW		\$89
ATA 66/100/133			
Sonnet ATA/100 PCI	TAT-100		\$89
A Card ATA/100 PCI	AEC-6280M		\$98
A Card RAID/66 PCI	AEC-6860M		\$139
Sonnet ATA/133 PCI	TAT-133		\$99
A Card ATA/133 PCI	AEC-6880M		\$157
Sonnet RAID/133 PCI	TAT-133R		\$195

SCSI ULTRA/WIDE/ULTRA 160			
A Card Ultra SCSI	AEC-6712TUM		\$43
A Card Wide SCSI	AEC-6712UWM		\$85
A Card U160 SCSI	AEC-67160M		\$147
Adaptec U160 SCSI	APD29160MAC		\$285
Adaptec Dual U160 SCSI	APD39160MAC		\$385

CD-RW'S

FIREWIRE REWRITABLE			
Yamaha 44x24x44, External FireWire & USB 2.0 Kit			
	CRW-F1ZDX		\$289
CDCyclone 40x12x48 w/Software, Cable & Media			
	7070		\$225
TDK 24x10x40 VeloCD Drive Kit			
	FE-241040BX		\$235

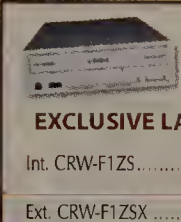
SCSI REWRITABLE			
Plextor 12x10x32 Packet Write, 4MB Buffer, Tray Loading			
	Int. PXW1210TSB		\$199
	Ext. PXW1210TSBX		\$259
With Toast Mastering Software			
	Int. PXW1210TSM		\$269
	Ext. PXW1210TSXM		\$329
Yamaha 44x24x44 Exclusive DiscT@2 Laser Labeling Sys.			
	Int. CRW-F1ZS		\$259
	Ext. CRW-F1ZSX		\$309

U160 HARD DRIVE



Seagate.
36.7GB/15,000 RPM
8MB BUFFER
SCSI ULTRA 160
ST3367S2LW
\$399

SCSI CD-RW DRIVE



YAMAHA
44X24X44
EXCLUSIVE LASER LABELING SYS.
Int. CRW-F1ZS **\$259**
Ext. CRW-F1ZSX **\$309**

18" MONITOR



HITACHI
18" VIEWABLE
LCD FLAT-PANEL
CML181SXW
\$1039

RAID SOLUTIONS



MEGA-RAID
800GB EXTERNAL
RAID SOLUTION
7200RPM
START800WD
\$7079

ZIP 750 DRIVE



**ZIP 750MB
EXTERNAL
WITH SOFTWARE**
IDE 32328 **\$149**
USB 2.0 32324 **\$172**

TAPE DRIVE



SONY
SONY AIT EXTERNAL DEVICE
35-90 GB
USB 2.0 & FIREWIRE
SDX-420COMBO
\$869

DIGITAL CAMERA



SONY
CYBERSHOT F707
W/ CARL ZEISS
VARIO-SONNAR LENS
DSC-F707
\$985

2.5 IDE HARD DRIVE



FUJITSU
20.0GB/2MB BUFFER
IDE LAPTOP DRIVE
MHR2020AT
\$95

USB 2.0 CD-RW



PLEXTOR
40X12X40
4MB BUFFER
PXW4012TUSW
\$205
mac software not included

19" MONITOR



HITACHI
18" VIEWABLE
FLAT SCREEN CRT
CM71SU-S11
\$295

DIGITAL STORAGE



PowerFile
FIREWIRE
200 CAPACITY
DVD JUKEBOX
11074
\$985

REMOVABLE DRIVE



**QudI REMOVABLE
FIREWIRE CARTRIDGE BASE***
QD-12SF
\$65
*Does not include drive cartridge

TAPE DRIVE



TAPESTOR DDS-4
20-40GB WITH SOFTWARE
STD2401LW-R
\$899
Seagate.

INK JET PRINTER



**DESIGNJET
500
24" PRINTER**
1200x600 DPI
C7769B
\$2159

CALL US FOR HARD TO FIND PARTS!

2201 Pine Drive, Dickinson, Texas 77539

(281) 534-3919 Fax: (281) 534-6580

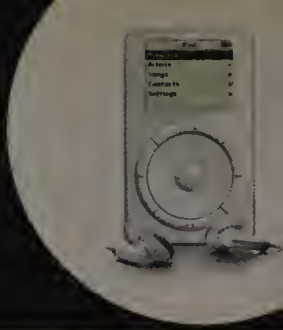
Prices & specifications subject to change without notice. Shipping charges are nonrefundable. Returns must be in new condition and in original packaging. Defective items may not be returnable. No refunds on software or special orders items not listed in ad. All refunds subject to 16% restocking fee. All trademarks are registered trademarks of their respective companies. Personal checks held for clearance. We reserve the right to refuse any sale for any reason. Bundle price good only if sold at ad price. All warranties listed are manufacturer's warranty only. For complete terms and policies, please visit our website: ©2002 Megahaus, Inc.

1.800.786.1184
www.megahaus.com

Sales lines open:
M-F 7-8, Sat 9-1, CST

Secure Ordering
Para Llamadas En Español
(800) 786 - 1174

Win an Apple iPod!
Details on page 89



Official Rules

NO PURCHASE NECESSARY TO ENTER OR WIN. IF YOU DO NOT WISH TO BE BOUND BY THESE RULES, PLEASE DO NOT ENTER THE DRAWING.

HOW TO ENTER: Drawing is open to all Macworld readers (excluding current panel members) who complete the survey. This is an Internet only drawing. To enter, complete the survey at www.rsch.com/macsurvey and fill out the entry form at the end of the survey. The form must contain your name, mailing address, e-mail address, and daytime phone number. The information you provide in the survey is for research purposes and will be held strictly confidential. This information will never be sold or given away. No salesperson will ever contact you as a result of any information you provide us. Entry period begins at 12:01 a.m. (Pacific Time), on 8/06/2002 and ends at 11:59 p.m. (Pacific Time) on 11/12/2002. Participation constitutes entrant's full and unconditional agreement and acceptance of these Official Rules that shall be final in all respects. Only one entry is allowed per person. For the purposes of this promotion, an "entrant" shall consist of a person, family or household with a valid email address. Should multiple entries be received, all such entries will be disqualified. Late entries, ineligible entries, illegible entries and/or incomplete entries will not be accepted. All entries are subject to verification.

ELIGIBILITY: All pertinent survey questions must be answered to enter. Drawing is open to legal residents of the 50 United States or the District of Columbia who are 18 years of age or older upon entry. Persons in any of the following categories are NOT eligible to participate in this drawing: (i) persons who from or after January 1, 2001 were or are employees or agents of Mac Publishing, L.L.C. or its independent contractors; (ii) individuals engaged in the development, production or distribution of materials for this drawing; (iii) persons who are immediate family of any person in any of the preceding categories regardless of where they live; or (iv) persons who reside in the same household, whether related or not, as any person in any of the preceding categories.

WINNER SELECTION: On or about 11/19/2002, one prizewinner will be randomly selected under the supervision of Sponsor from all eligible entries received. The prizewinner will be awarded a 10-gigabyte hard drive Apple iPod (approximate retail value \$400). Any additional expenses incurred in connection with prize will be the sole responsibility of the prizewinner. Sponsor's decisions are final in all matters regarding this drawing. No negotiations will be entered into. The odds of winning depend on the number of eligible entries received. Winner will be notified by e-mail and/or telephone on or about 11/26/2002. For winners' list, send a self-addressed, postage paid envelope after 12/3/2002 to Macworld Online Drawing, 501 Second St., 5th Floor, San Francisco, CA 94107.

CONDITIONS OF PARTICIPATION: It is your responsibility to read, understand and ensure that you have complied with all of the conditions contained in these Official Rules. All entries become the property of Sponsor and will not be returned. Sponsor is not responsible for incorrect or inaccurate entry information whether caused by entrants or by error of the equipment or programming associated with

or utilized by Sponsor or by any technical or human error that may occur in the processing of the entries in the drawing. Entrant agrees to release and hold Sponsor, its officers, directors, affiliates, employees, contractors, subsidiaries, agents and partners harmless from and against all liability, arising from or in any way related to this drawing. Entrant shall indemnify Sponsor, its officers, directors, affiliates, contractors, subsidiaries, agents, employees and partners from and against all claims or suits and any damages or costs arising from or relating to entrant's violation or inaccuracy of any warranties or representations made relating to this drawing. Sponsor is not responsible for any fraud or misconduct on the part of entrants. Should an entrant engage in fraud or misconduct of any nature, including but not limited to a violation of the Official Rules, such participant shall be subject to immediate disqualification. Sponsor reserves the right in its sole discretion to cancel or suspend this drawing should virus, bugs or other causes beyond its control corrupt the administration, security or proper play of the drawing. Winners must respond within 72 hours from the time winner is notified. If a winner fails to respond within the time limit, winner shall have forfeited the prize and it shall be within Sponsor's sole discretion to select an alternate winner. Prize is non-transferable. No cash redemption or substitution will be allowed, except at Sponsor's sole discretion. If the prize is unavailable, Sponsor reserves the right to substitute a prize of equal or greater value. Winner may be required, in the sole discretion of Sponsor, to sign and return an affidavit of eligibility and a liability release within ten (10) days of prize notification or the prize may be forfeited and awarded to an alternate winner. Winners are responsible for all applicable Federal, State and local taxes. If these rules differ from any promotional or other materials published in connection with the drawing, these rules shall control.

LAW: This drawing is void where prohibited or restricted by law. All federal, state and local laws, rules and regulations apply. Drawing is governed by, construed, and enforced in accordance with the laws of the State of California, United States of America, without regard to any choice of law principles. As a condition of entering this promotion, entrants agree that (a) any and all disputes, claims and causes of action arising out of or connected with this promotion, or the prize awarded, shall be resolved individually, without resort to any form of class action, and exclusively by arbitration under the rules of the American Arbitration Association; (b) any and all claims, judgments and awards shall be limited to actual out-of-pocket costs incurred, including cost associated with entering this promotion but in no event attorney's fees; and (c) entrants hereby waive all rights to claim punitive, incidental and consequential damages or other damages, other than actual out-of-pocket expenses, and any and all rights to have damages multiplied or increased.

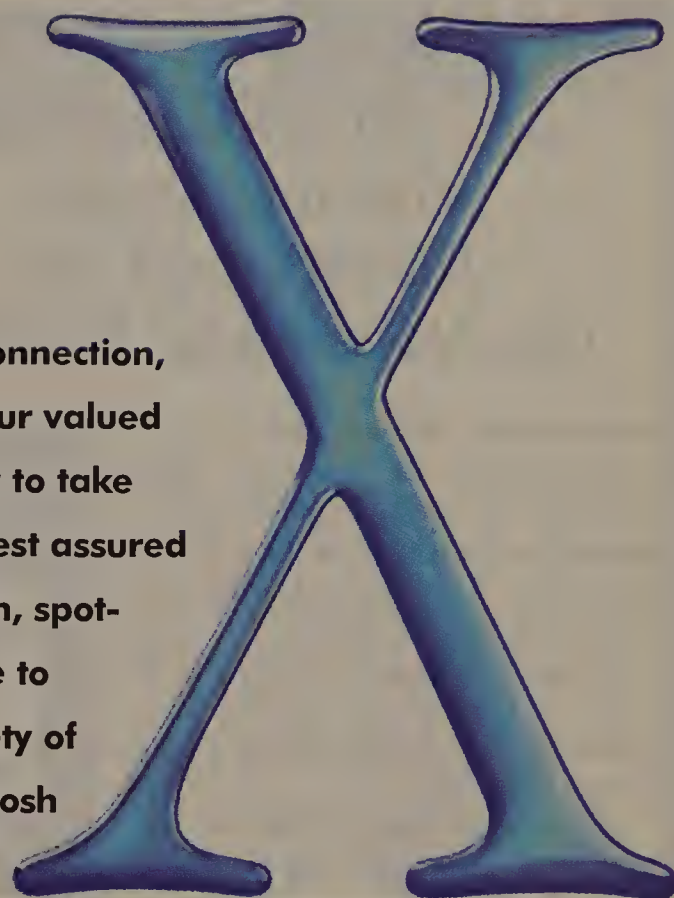
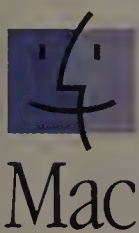
ENTIRE AGREEMENT: These Official Rules set forth the entire agreement between the parties relating to the subject matter hereof, and supersede all prior agreements and understandings relating thereto, whether oral or written.

DRAWING SPONSOR: Mac Publishing, L.L.C., 501 Second St., 5th Floor, San Francisco, CA 94107.

Macworld
THE MAC PRODUCT EXPERTS

Welcome to the Apple OS X Showcase

Macworld magazine, in conjunction with the Apple Developer Connection, built this very special Mac OS X Showcase section to keep you, our valued reader, apprised of the hottest products built especially to take advantage of Apple's new operating system. You can rest assured that this new section will grow with each passing month, spotlighting the coolest new products for Mac OS X. Be sure to check the Mac OS X Showcase monthly for a wide variety of new and innovative solutions that will make your Macintosh and Mac OS X experience as enjoyable as possible.



FREE UPGRADES FOR LIFE!

TIRED OF BEING SHAKEN DOWN FOR EXPENSIVE, BUGGY, FORCED UPGRADES FROM THE BIG VENDORS? JOIN THE PEOPLE WHO BELIEVE THAT YOU SHOULD BUY SOMETHING ONCE – AND HAVE IT FOREVER! SUPPORT AN OPEN AND FREE SOFTWARE DEVELOPMENT COMMUNITY NOT RUN BY MARKETING TYPES OR BEAN COUNTERS.



The applications in Stone Studio — starring Create® — have all the most used features of these applications: Illustrator, Quark Xpress, DreamWeaver, Freehand, Corel Draw, PageMaker, Timeslips, Acrobat Writer, Stuffit Deluxe, ImageReady, iPhoto and more. Visit www.stone.com/Stone_Studio_Successes to see how people just like you get their best ideas out into the world.



STONE STUDIO™

7 APPS 1 LOW PRICE 0 PAID UPGRADES

STONE STUDIO DOWNLOAD NOW FROM WWW.STONE.COM



\$299

TRAINING

ALL STAR Macintosh Training Event Announced For Las Vegas and Orlando

Announcing An All Star Event

MacAcademy, the nation's leading computer training company today announced an all new, all star training event scheduled for Las Vegas and Orlando in February and March of 2003.

The training event, open to all Macintosh users, brings together the nation's leading computer application instructors for a 4-day Learning Extravaganza.

Instructors are selected based on both application mastery and teaching credentials. Each instructor has trained thousands of Mac users and is consistently rated as excellent by their students.

The All Star Learning Format

The event, presented in both Las Vegas and Orlando will feature 4 days of training, 64 different workshops and 24 hours of intense instruction.

The All Star Line-Up

Macintosh users will be able to create their own class schedule selecting from mastery workshops on FileMaker Pro, Photoshop, Excel, Dreamweaver, Illustrator, Word, Flash, and the OS X operating system.

A Unique Training Opportunity

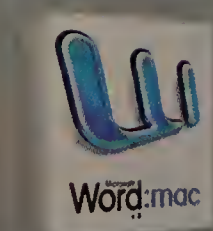
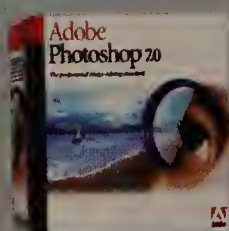
For the first time, a Mac user can spend four days learning programs from start to finish while picking the brains of the nation's foremost teachers. Everyone in one place, at one time, devoted to becoming the best you can be on the programs you use the most.

The Cost and the Guarantee

People pay hundreds of dollars to learn one program from local trainers. The All Star Learning Extravaganza offers a 4-day learning event from "All Star" instructors for only \$599. In addition, each attendee receives a complete money back, if not satisfied, guarantee.

With the all star line-up and the low admission price you must act now.

Get expert training on these programs and more



Call for Information
800.527.1914
www.macacademy.com
Priority Code SP-2636

www.trainsimple.com
(888) 577-8333

Training CDs from today's top experts. Topics include:
OS X.2 • Photoshop • Flash and more! from \$39 - \$89



Authorized Training Center



Adobe Certified Expert



macromedia 2002 AUTHORIZED TRAINING PARTNER

OS X Solutions

MacAcademy www.macacademy.com

Train Simple www.trainsimple.com

Stone Design www.stone.com

Your Mac Life www.yourmaclife.com

Advertise your OS X products here! **800-597-1594**

The name of the show is what it's about

YOUR MAC LIFE
WITH SHAWN KING

Listen live
6-8pm PT,
9-11pm ET
Wednesdays
via QuickTime...

Command-U at:
rtsp://qt3.bopjet.net/yml/YML

Talk back!

IRC: #yourmaclife

<http://www.bchat.com>

I LISTEN TO
YOUR MAC LIFE
www.yourmaclife.com

The Mac
You Want
Where You
Want It

Macworld Showcase Featured Advertisers

OSX Showcase

Stone Design	stone.com
Train Simple	trainsimple.com
MacAcademy	macacademy.com

Developer Showcase

Gefen	gefen.com
Orange Micro	orangemicro.com
Griffin Technology	griffintechology.com
Crywolf	crywolf.net
MarWare	marware.com
ADS Technologies	adstech.com
Dr. Bott	drbott.com
Photo Control	photo-control.com
GeeThree.com	geethree.com
PPX2	ppx2.com

Tomatochip.com	tomatochip.com
Worth Data	barcodehq.com
Granite Digital	scsipro.com
Everything iPod	everythingipod.com
Hoodman Corporation	hoodmanusa.com
The PowerSource	thepowersource.com
Lind Electronics	lindelectronics.com
CompuCable	compucable.com
Biomorph Interact	biomorphdesk.com
QuickVoice	quick-voice.com
Marathon Computer	marathoncomputer.com
Eskape Labs	eskapelabs.com
Fat Cow Hosting	fatcow.com
Full Sail Real World Education	fullsail.com

Services Showcase

AmericasPrinter.com	americasprinter.com
Presentation Services	imagers.com
Copy Craft	copycraft.com
Postcard Press	postcardpress.com
Global Print Runner	globalprinrunner.com
Drive Savers	drivesavers.com
Lazarus	lazarus.com
Total Recall	totalrecall.com
Sharpdots	sharpdots.com
Modern Postcard	modernpostcard.com
Creative Juices	bigposters.com
Mac Solution Experts	macsolutionexperts.com
Silicon Valley CD	svcd.net

Direct Showcase

1-800-4-Memory	18004memory.com
POS Direct	posdirect.com

Ramjet	ramjet.com
Data Memory Systems	datamem.com
Academic Superstore	academicsuperstore.com
Journey Educational	journeyed.com
MegaMacs	megamacs.com
Mac Solutions	macsolutions.com
Shreve Systems	shrevesystems.com
PowerMax	powermax.com
Otherworld Computing	macsales.com
PowerOn Computers	poweron.com
TD Curran	tdcurran.com
Mac of all Trades	macofalltrades.com
MacPro	mac-pro.com

For more information, contact Niki Stranz or Carol Johnstone at (800) 597-1594.

ADC • DVI • CAT-5 • USB
Extenders • Converters • Switchers • Distribution • Adapters

ex-tend-it ADC Switcher
ADC, DVI, USB and Audio Switcher

Ideal for switching Monitor, Keyboard/Mouse and Audio between two computers connected to an ADC Flat Panel Display



DVI to ADC Conversion Box
Extends and Connects an Apple Flat Panel Display to any Mac or PC Computer

Macworld

800-545-6900 **www.gefen.com**

**"One Small Step for iBOT
One Giant Leap for Web Cams"**



iBOT
World's first FireWire® Web Cam!
Warp speed provided by FireWire® Technology

The iBOT plugs into any FireWire® port on your Macintosh and offers you the highest quality video conferencing and video creation. The iBOT, using FireWire® technology, runs up to 10 times faster than current USB web cams. The iBOT works on Mac OS 9 and OS X.

AVAILABLE AT:
MicroCenter
Fry's Electronics
1394 FireStation.com
& others

Orange Micro Inc.
www.orangemicro.com

FireWire **X**

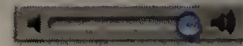
Choose 61 at www.macworld.com/getinfo

What can PowerMate do for you?



Take It For A Scroll

PowerMate is the fastest way to scroll through long text documents, spreadsheets, web pages. With a flick of the wrist, you get to the bottom of the story in record time.

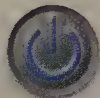


Pump Up The Volume

PowerMate is the coolest volume knob your desk has ever seen. Crank up your MP3s and CDs. Then with a push of its button, mute your music to answer the phone and handle the complaints.

Make Movies With A Twist

Edit your video masterpiece with your very own Jog/Shuttle wheel. Use PowerMate to scroll through and trim unwanted footage with the push of a button.



Power Control

PowerMate is an assignable controller. That means you can program it to do anything you want in any application. Program the wheel to scroll your email, set the button to switch to your browser. Customize it to your needs and get wild.

PowerMate

USB Multimedia Controller & Input Device

ONLY
\$45⁰⁰

PowerMate is the coolest volume knob your Mac has ever seen and so much more. Use it to edit iMovies, scroll through long documents and web pages. Best of all, PowerMate is an assignable controller. Program it to do anything you want in any application. PowerMate - take it for a spin.



JUST
\$35⁰⁰

iMic

USB Audio Interface

- Adds stereo audio input to your Mac
- Plug-and-Play, no software required
- Portable, no installation or power needed
- Supports MP3, QuickTime and AIFF files



JUST
\$39⁰⁰

USBAudio Hub

4-Port USB Hub for Audio

- Optimized for USB-based audio recording
- Works both powered and unpowered
- External power supply included
- Functions as standard USB 4-port hub



ONLY
\$19⁹⁹

PowerPodAuto

Ultimate iPod Car Charger


- Works with any cigarette lighter or 12V accessory port in your car, truck or boat
- Charges while playing your music
- Uses any FireWire cable for custom fit

Now you have two **easy** ways to purchase your Griffin Technology product directly.
Order by phone at 615-399-7000 or **order online** at www.griffintechnology.com/store.

GRIFFIN TECHNOLOGY

ORDER NOW **615-399-7000**

www.griffintechnology.com



See Cool New Mac Stuff & WIN an iPod!
Details at www.coolmacstuff.com


Amazing!

The New Flexible CoolMac Keyboard™

Great for Kids, Lab & Medical Environments, Schools, Kiosks, Food Service, Recording Studios & more!

- Flexible
- Waterproof
- Portable
- Durable
- Quiet
- Easy to Clean

CoolMac Keyboard and loads of Cool Mac Stuff AVAILABLE at CoolMacStuff.com



866-CoolMac
Toll Free: 866-266-5622

USB Models in Translucent Ice White or Stealth Black.



Light and airy, yet fully functional, imacclothes are designed to complement and protect your computer.



iMac screen shirt

Order online at www.imacclothes.com

SHOWCASE

YOUR PRODUCTS TO OVER 2 MILLION READERS

*SOURCE: INTELLIQUEST CIMS v. 8.0

Macworld

1.800.597.1594

EXTREME GEAR

for your Apple® portables



SportFolio™ cases for iBook and Titanium G4 Powerbooks
all cases available several colors & styles



NEW! SportSuit™ Convertible for iPod!

www.MARWARE.com

Indulge Your Mac.

Connect

Connect - Add more USB and FireWire ports to your notebook or desktop computer



PYRO 1394DV for Notebooks
• Add 2 FireWire ports (one 6-pin & one 4-pin) to your Mac notebook - \$99

USB Turbo 2.0 for Notebooks
• Add 2 USB ports to your Mac Notebook
• Supports all USB 1.1 compliant devices - \$79

PYRO 1394 6-Port Hub
• Connect more FireWire devices to your Mac and easily add devices without crawling behind your computer - \$69

USB Ultra Hub 4
• Connect more USB devices to your Mac and easily add devices without crawling behind your computer - \$29

USB Cable
• Connect your USB printer, scanner, or other devices to your Mac with this 6', A to B, USB cable - \$19

Create

Create - Tools for capturing, editing, and sharing videos with your Mac



USB Instant Video
• Capture video/audio, from any video source, quickly and easily through your USB port.
• Includes MovieWorks LE
• Edit your video, share it over the Internet, or save it on CD as a VCD - \$69

PYRO 1394 WebCam
• High-quality, FireWire video conferencing with the clearest images on the Net
• Includes Mac software for video conferencing with both Mac and PC users
• Support for OSX - \$79

USB Instant DVD for Mac
• Capture analog video from any video source.
• Create DVD movies with Pixela DVD authoring software.
• DVD Studio Pro plug-in included.
• Apple Superdrive and iDVD not required

COMING SOON!



Store

Store - Add hard drives, CD-R, or DVD drives without ever opening your computer with these FireWire and USB Drive Kit solutions. Simply install the hard drive of your choice and create reliable, external storage.



PYRO 2.5" Drive Kit
• Convert your 2.5" notebook hard drive into an external FireWire drive - \$99

PYRO 1394 Drive Kit
• Convert your IDE hard drive or CD/DVD drive into an external FireWire drive - \$99

USB 2.0 Drive Kit
• Convert your IDE hard drive or CD/DVD drive into an external USB 2.0 drive (backwards compatible with USB 1.1) - \$99

PYRO AV Link
• Convert analog audio/video to DV and edit analog sources in DV format.
• Compatible with Final Cut and iMovie.
• Send out to analog and save to tape.
• SVHS/composite/audio in and out connectors & component video input included.

\$299



ADS products are Available everywhere including: Safe Harbor, Mac Zones, Mac Mall, CompUSA, Circuit City, B&H Photo, Video Guys, DV Direct, Data Vision, CWOL.com, J&R Music World, Micro Center, and more!



Cerritos, CA - 800-888-5244
www.adstech.com



MoniSwitch**ADC**

2-Port Monitor/USB Sharing Switch

Compatible
with the 15", 17",
22", or 23" Apple flat
panel display and any combination of two
Macintosh G4 computers with ADC video connections.



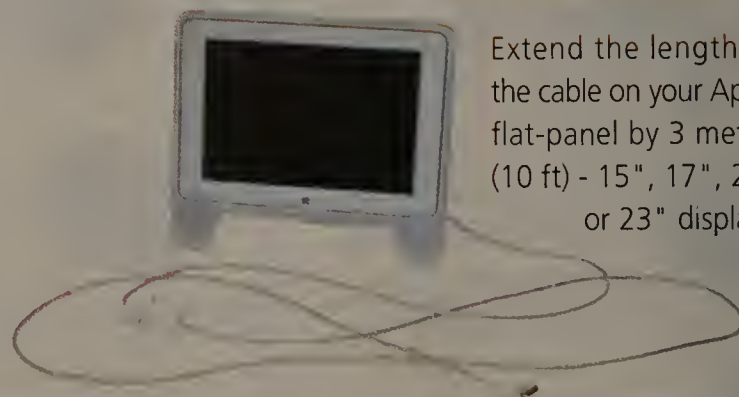
Share one Apple flat panel
display, one keyboard and
one mouse between two
ADC Macintosh computers.

ADC VGA-Extractor



VGA Extractor
for ADC allows
dual VGA displays
with the built-in
video card on
your new G4.

ADC Extension



Extend the length of
the cable on your Apple
flat-panel by 3 meters
(10 ft) - 15", 17", 22",
or 23" displays.



Dr. Bott's complete focus is serving resellers with hundreds of products from over 30 manufacturers. We scour the globe to bring you the best Mac products. New resellers and manufacturers are always welcome.

503.582.9944

www.drbott.com

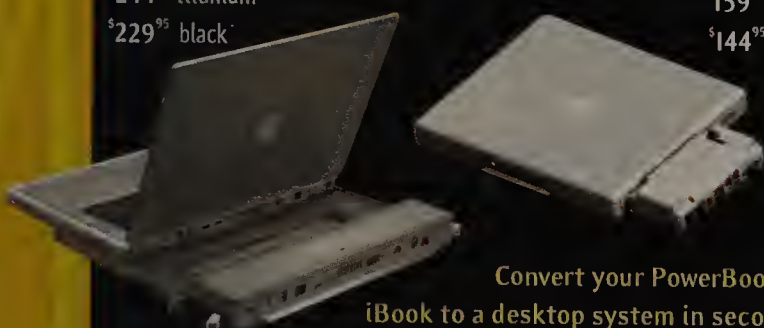
877.611.2688 (Toll Free)

Choose 173 at www.macworld.com/getinfo

Docking Stations for G4 PowerBooks and 2001 iBooks

\$244⁹⁵ titanium
\$229⁹⁵ black

\$159⁹⁵ white
\$144⁹⁵ black



Convert your PowerBook or iBook to a desktop system in seconds.

- Eliminates cable confusion and damage to connectors.
- New release levers for easier docking and undocking.
- Adds only 3" to rear when docked.
- Also available for G3 PowerBooks.

BookEndz

A Division of Photo Control Corporation
4800 Quebec Ave. N, Minneapolis, MN 55428
Phone: (763) 537-3601 • Fax: (763) 537-2852
www.photo-control.com

www.bookendzdocks.com

BookEndz Lindahl

Norman Camerz

Fog Matte 4 Volumes!

Slick

Transitions & Effects
Plug-ins for iMovie

Ideally suited for documentaries, independent films, or any video project.

buy CD or download at: www.geethree.com

Macworld BEST OF SHOW 2002

Gee three

Choose 162 at www.macworld.com/getinfo

PubPro X2

The next generation publication management software

www.ppx2.com
pubpro@mac.com

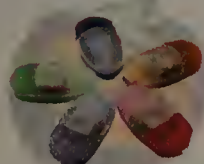
If you publish, then you need to take a look at PPX2. From invoicing to subscriptions and sales tracking to accounting, PPX2 is proven to save time, money and effort in the production of magazines, newsletters and other media.

Cross platform, web and mobile ready

TomatoChip.com

Your source for

Mac Peripherals,
USB & FireWire Solutions,
and Networking Products



USB Programmable Mouse

Starting at \$6.99

Shown: USB Programmable Mouse



FireWire and USB Hard Drive Conversion Kits

Starting at \$87.99

Shown: 2.5" HDD Conversion Kit



FireWire and USB Cables

Starting at \$0.99

Shown: USB Extension Cable



USB and FireWire Hubs

Starting at \$7.50

Shown: 2-port USB Hub

... and more!

tomatochip.com

Bar Code Headquarters

Broad selection of Mac bar code products

- Portable Bar Code Readers
- Integrated USB Readers
- Keyboard Readers
- Wand, CCD or Laser Scanners
- Magstripe Scanners
- Wireless Scanners
- Wireless Interactive RF Terminals
- Postscript Bar Code Fonts
- Polyester Label Stock
- Made in the USA



Call us toll-free at 800-345-4220

or visit us online at www.barcodehq.com

- Technically superior products
- Shop online at www.barcodehq.com
- Free Catalog & Bar Code Primer
- 30 day money-back guarantee

- 18 years of dedicated customer service
- Toll-free technical support
- Same-day shipping
- Free 2-day air in US

Ph. (831) 458-9938 • Fax (831) 458-9964 • Email wds@barcodehq.com

WORTH data



Get Smart

Granite
D•I•G•I•T•A•L

www.granitedigital.com

The FireWire Drive with a technician built in.

Ever wondered what's really going on inside that box? With the new line of **SMART Drives** from Granite Digital, you will never have to wonder again. This FireWire IEEE1394 enclosure includes a Microprocessor and LCD display that will tell you everything you ever wanted to know about your drive's condition. It's like having your own technician built into every case. The case also monitors drive performance for speed-intensive operations like DV and AV and it helps keep your data safe and secure.

So, if your looking for the safest place to store your data, and if you like the idea of knowing what's going on before you have a problem, then the **SMART Drive** from Granite is the drive for you.

Unlike other FireWire companies, Granite writes its own firmware and supports more drives than anyone else. Our easy to use upgrade and browser utilities keep us ahead of the competition while giving our customers the information that they need....spoil yourself and Get Smart.

Get Hot

Hot-Swap that is. The new Granite **FireWire Hot-Swap Drive** is one of the most versatile storage systems on the market. With the low cost of IDE hard drives you can now affordably use hard drives to backup your computer, transport large amounts of data, dedicate drives for projects, and completely eliminate the need for tape drives and other archival systems. It's the ideal solution for your removable storage needs, and it is faster than all other types of archival systems.

The key to our **FireWire Hot-Swap Drive System** is our low cost hard drive trays. These affordable trays hold low cost IDE hard drives. Both Macintosh & Windows 98SE, ME, 2000, and XP are completely supported without the need of any software or additional drivers...just plug it in and you are up and running.



- Fast FireWire 40MB/s data transfers.
- Uses low cost IDE drives.
- Large affordable backup solution.
- Perfect for DV or AV projects.
- Unlimited storage capabilities.

Additional Drive
Trays are only
\$29.95



• 3101 Whipple Rd., Union City, CA. 94587 • 510-471-6442-tel • 510-471-6267-fax •

Choose 186 at www.macworld.com/getinfo

Register To Win A FREE iPod™

*No purchase necessary

The Aqua Jam Jacket



A translucent
silicone
iPod™ case

Fits ALL
iPod™ models!

Over 100 different iPod™ Accessories!

everythingipod.com

The Number One Source for iPod™ Accessories

See Your Laptop's Screen Outside!



\$39.95

800.818.3946

www.HoodmanUSA.com

ThePowerSource.com

portable power specialist

introducing power

\$39.95

Half the cost of others!

Order directly from:
www.ThePowerSource.com

- Designed for iBooks and PowerBooks
- Exceeds Apple's requirements
- One Year Warranty

NEW!

AC & Auto Power Adapters

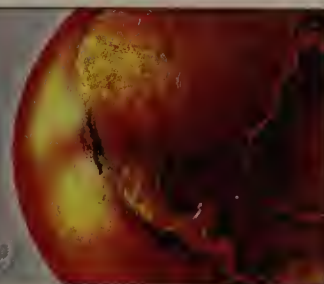


LIND

Power Accessories *for*
Mobile Computing

***Introducing the
MaxPower 60
Lilon Auxiliary Power Pack**

**Auto/Air Power Adapters
for
PowerBook G4s & iBooks**



\$79.95

\$299.95

For Ti G4s & iBooks

Extend your runtime up to 3x longer
Only 2.5 lbs - 11.25 x 8.5 x .5"
Includes AC adapter and cables

Lind adapters feature:
Fault protection circuitry
with Automatic reset
Durable ABS housing
Nylon carrying case

Order online at:
www.lindelectronics.com
or call #800-897-8994 to order

Lind Electronics Inc. 6411 Commerce Street, Minneapolis, MN 55426 (612) 927-6303

m e m®

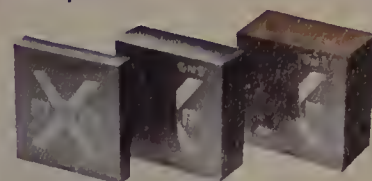
20/30/40 GB of Video, Music, Photos, and Data... To Go!

X-MeM

**XPAND YOUR STORAGE INSTANTLY.
XPEDITE FILE TRANSFERS.**



- Cartridge & Reader design maximizes portability
- FireWire and USB compatible (adapters included)
- Built-in 3-port FireWire repeater allows daisy-chaining
- MacOS9.1/X, Win98SE/ME/2000/XP compatible



CompuCable
Manufacturing Group

Available at

**INGRAM
MICRO**

CDW

WAREHOUSE

1-800-344-6921

X-MeM.compuable.com

*get the new
digital hub*

biomorphi X02
desk system

fully adjustable
totally expandable
starting at \$329.00

biomorph.com free catalog 888 302-DESK

Biomorph is a reg. trademark of S. Barlow-Lawson ©2002 Ground Support Equipment (US) Ltd.



Choose 161 at www.macworld.com/getinfo

QUICKVOICE



**Personal Recorder,
Voice Reminder,
Voice Email and
Voice Stickies**

For Ideas • Memos • "To Do's" •
Meetings • Multimedia Audio •
Lectures • Reminders • Journals

Featuring:
10 Recording Channels • 99 Messages Per
Channel • One-Click Recording • Unlimited
Recording Time • One-Click Voice Email

**Download
Only \$19.95**

Highly Rated! (4.8 of 5)
See Tucows, MacGeneration, Version Tracker, CNet

www.quick-voice.com

Capture your thoughts with the click of the mouse!

SHOWCASE SUCCESS

"Macworld Showcase has been the
very best advertising dollar our
company has spent since we went
into business."

TED BIRMINGHAM, CEO
IProof Systems

Macworld

1.800.597.1594



\$99
a year

big hosting plan. simple price.

- 100MB disk space
- 100 email accounts
- 5GB monthly transfer
- Shopping Cart
- Frontpage Extensions
- CGI, PHP, MySQL
- Control Panel
- Lots more!

WWW.FATCOW.COM/MAC

Toll Free: 1-866-506-9572

Jump back
back
we can put
your Mac
in side of any
standard
19-inch
equipment
rack.
That's not
all that
Marathon
can do
we can put
your monitor
inside there
too.
Your CRT,
your ACD,
we can
rack it up
as easy
as A-B-C

RACK YOUR WORLD



G•Rack for G4

MARATHON COMPUTER

www.marathoncomputer.com
email: info@marathoncomputer.com
800-832-6326 • 615-367-6467

With Rack
for Mac
and a 40
Unit high
rack, put
forty CPUs
in one six-
foot high
stark.
Get off of
the desk
get up off
the shelf.
You got
your Mac.
We got
your rack,
install it
yourself.
We've
Marathon
That's a
We're
going

Got OS X TV?

MyTV2GO and MyTV...
TV for your Mac

Eskape
Labs
A Hauppauge Company

From \$79



From \$134



Now with OS X support included

download new OS X software at www.eskapelabs.com/tech.html

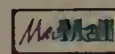
You've got to see it to believe it!
www.eskapelabs.com



ClubMac

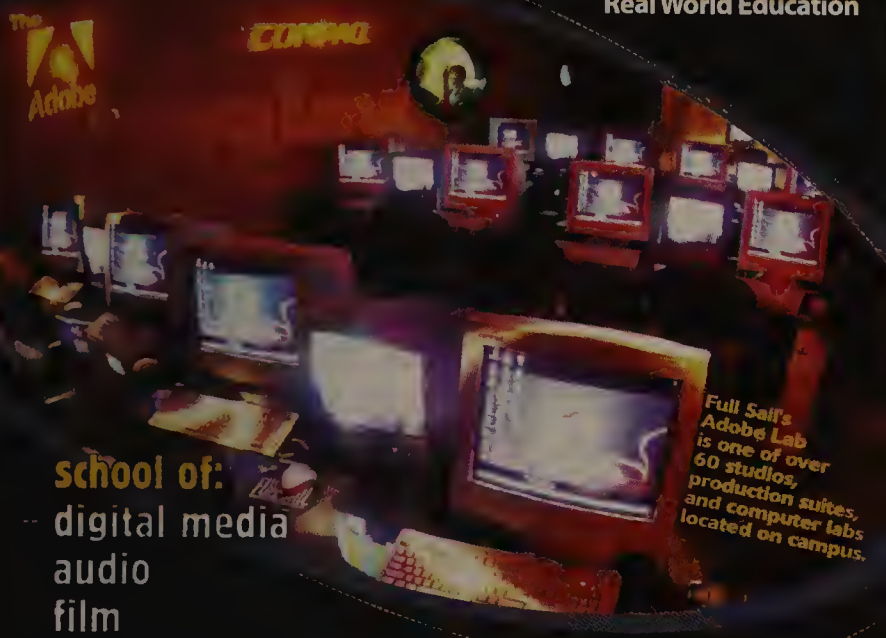
MICRO CENTER
THE COMPUTER RESOURCE STORE

@DEPOT



www.fullsail.com
800.226.7625

FULL SAIL
Real World Education



school of:
digital media
audio
film
computer animation
game design & development
show production & touring

Full Sail's
Adobe Lab
is one of over
60 studios,
production suites,
and computer labs
located on campus.

3300 University Blvd. • Winter Park, FL 32789

Job placement assistance.
Accredited college, ACCSCT.
Financial Aid available to those who qualify.

© 2002 Full Sail, Inc. All rights reserved. The terms "Full Sail Real World Education," and the Full Sail logo are either registered service marks or service marks of Full Sail, Inc.

Get A Free Sample

Printed From **Your File**

Go to www.imagers.com/macw... Discover excellent print quality of our newest and very improved Indigo Ultra digital color press!

Digital Services!

Offset CMYK Color Printing
Large Format Color Posters
Hi-Res Film Scans To CD
Color Laser Printing
Digital Photographic Prints
Slides/4x5-Neg, Pos, B&W

We Use...
Advanced
Technologies
for quality results!



800.232.5411 or 404.351.5800
1575 Northside Dr. Ste. 490 Atlanta 30318

www.imagers.com

Choose 155 at www.macworld.com/getinfo



AmericasPrinter.com

The easiest way to print today.

From 1000 to millions, we get your product printed fast....

We're a 40" Heidelberg® printshop designed to turn your job fast. We print 24 hours a day. We'll print and ship most jobs anywhere in the USA within 2-3 days from your order and data file.

From Film to Finishing, One Price completes the Job!

15pt Super Heavy C/2/S cardstock

w/ Gloss UV on color side(s) - 175 line Kodak film included.

		1000	2500	5000	10000
Business Card dimension size 3.5" x 2"	4/1	\$50	\$70	\$130	\$220
	4/4	\$90	\$110	\$190	\$320
1/4pg Postcard dimension size 4.25" x 5.5" or 2.75" x 8.5"	4/1	\$130	\$130	\$190	\$340
	4/4	\$170	\$170	\$260	\$470
1/2pg Postcard dimension size 5.5" x 8.5" or 4.25" x 11"	4/1	\$190	\$190	\$340	\$650
	4/4	\$260	\$260	\$470	\$850

100lb Cover Cardstock C/2/S Gloss

Grade 1 Sheet - 175 line Kodak film included.

		2500	5000	10000	15000
1/4pg Postcard dimension size 4.25" x 5.5" or 2.75" x 8.5"	4/1	\$120	\$160	\$310	\$440
	4/4	\$130	\$190	\$350	\$490
1/2pg Postcard dimension size 5.5" x 8.5" or 4.25" x 11"	4/1	\$160	\$310	\$595	\$850
	4/4	\$190	\$350	\$640	\$910

100lb Gloss Book (text) C/2/S

Grade 1 Gloss Sheet - 175 line Kodak film included.

		1000	2500	5000	10000
One sheet dimension 8.5" x 11" - This can be folded as a trifold, half fold, etc. Folding additional	4/0	\$199	\$280	\$445	\$690
	4/4	\$295	\$395	\$550	\$895
Brochure / Poster dimension 11" x 17" - This can be folded as a 4 page brochure, trifold, etc. Folding Additional	4/0	\$345	\$445	\$690	\$1095
	4/4	\$430	\$550	\$895	\$1395
8 Page Catalog 8.5 x 11 w/ folding & saddle stitching	4/4	\$985	\$1295	\$1760	\$2695
16 Page Catalog 8.5 x 11 w/ folding & saddle stitching	4/4	\$1895	\$2495	\$3295	\$4970

714.521.1100 CA • 800.552.1303 toll free

714.521.5650 fax • jobs@AmericasPrinter.com

6940 Aragon Circle, Buena Park, CA. 90620

300 LINE SCREEN WATERLESS PRINTING



**High Quality.
Low Cost.
All In The Palm
Of Your Hand.**

You don't need to spend a fortune to have a full-color, top of the line business card. Copy Craft Printers is ready to help you set a new standard of quality and excellence in all your print projects. Call or email us at request@copycraft.com right away. We'll even throw in free ground shipping so you can access the best source for great business cards at affordable prices. You'll find us easy to do business with and besides we guarantee it!



Your Wholesale Source for 300 Line Screen Waterless Printing

4413 82nd Street, Lubbock, Texas 79424

1-800-784-5534

www.copycraft.com

FREE 1000

FREE 1000 postcards with any order of 1000 4x6 postcards or take \$20 off any postcard order above 2000 pieces* offer valid for 1st time customers only - limit 1 per customer - offer expires 02/01/2003

NEW!

IT'S EASY
send your digital file
we'll print your job in
2-3 days!



- ✓ New 2002 Heidelberg Speedmaster Press!
- ✓ Superthick cardstock!
- ✓ New mailing services!



4x6 Postcards

Qty	4/1	4/4
500	95	N/A
1,000	145. ⁰⁰	195. ⁷⁵
2,000	165. ⁰⁰	222. ⁷⁵
5,000	289. ⁰⁰	390. ¹⁵

Business Cards

Qty	4/0	4/4
1,000	60. ⁰⁰	90. ⁰⁰
2,000	80. ⁰⁰	108. ⁰⁰
5,000	140. ⁰⁰	189. ⁰⁰
10,000	250. ⁰⁰	337. ⁰⁰

POSTCARD PRESS

Uncompromising Customer Satisfaction

1-800-957-5787

www.postcardpress.com

Postcards

4"x6" 4/0 or 4/1
14Pt. C2S UV Coated
1,000 \$129

Brochure

8.5"x11" 4/4
100# Gloss Book
1,000 \$379
2,500 \$399
5,000 \$499

Free Film Output
on every print order!

Full Color Business Cards

2"x3.5" 4/0 or 4/1
14Pt. C2S UV Coated
1,000 \$59

4 Page Catalog

11"x17" folded to 8.5"x 11"
4/4 100# Gloss Book.

1,000 \$599
2,500 \$699
5,000 \$799

HEIDELBERG

WE DO IT ALL!
Full Color Letterheads,
Envelopes, Business Cards,
Brochures, Catalogs, Posters,
Postcards, Presentation
Folders & Much More

Visit our website for
unbelievable prices.

4 to 5 Day Turnaround!
100% Quality Guaranteed!

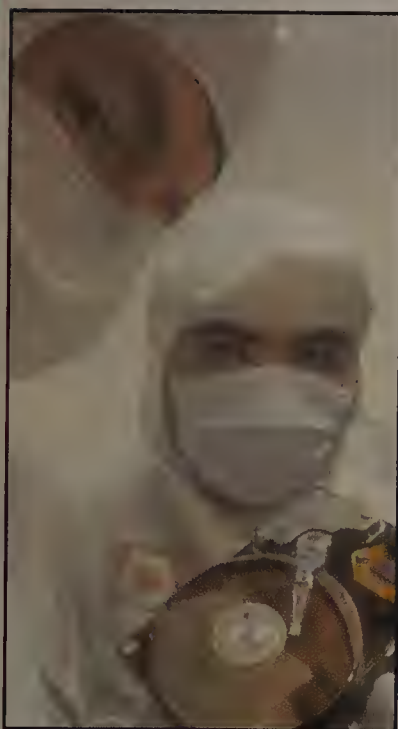


**GLOBAL
PRINT
RUNNER**

Call Us Toll Free

888.666.0744

www.globalprinrunner.com

DATA RECOVERY: 800-440-1904**7 great reasons to choose DriveSavers:**

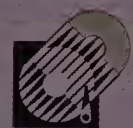
- Fastest, most successful data recovery service.
- Recommended by **all** hard drive companies.
- Advanced, proprietary techniques.
- 24-hour and weekend services available.
- Instantly retrieve recovered data with DATAEXPRESS™.
- Featured on CNN, BBC, MacWorld, MacAddict, and many others.
- Government Contracts.

**"We Can Save It!"**Visit DriveSavers at www.drivesavers.com

©2002 DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD., NOVATO, CA 94949 INTL: 415-382-2000

Choose 211 at www.macworld.com/getinfo**Data Recovery in hours.**

- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103**LAZARUS**

DATA RECOVERY

Working at the speed of business.

800-341-DATAChoose 217 at www.macworld.com/getinfo**SHOWCASE**YOUR PRODUCTS
TO OVER 2 MILLION READERS

*SOURCE: INTELLIQUEST CIMS v. 8.0

Macworld**1.800.597.1594****DATA RECOVERY**

Damaged drive? Lost files? Call us!

**FASTEST TURN-A-ROUND
IN-LAB OR REMOTE RECOVERY
GUARANTEED RESULTS****TOTAL RECALL**
THE DATA RECOVERY COMPANY**800-743-0594**
www.totalrecall.comThree Regional Service Centers!
COLORADO • FLORIDA • NEVADAChoose 199 at www.macworld.com/getinfo**THE VERY BEST IN
COMMERCIAL PRINTING****\$202 - 1,000 8.5x11 Flyers**
Excellent for Sales Sheets, POP, etc.**\$1,290 - 2,500 8pg Catalogs**
Perfect for Annual Reports, Product Catalogs, Sales Booklets, Journals, etc.**\$135 - 1,000 4x6 Postcards**
For Gallery Shows, Direct Mail, etc.**\$50 - 1,000 Business Cards**
For Leave-Behinds, Mini Head Shots, etc.

The Best Price and Quality For

Postcards • Business Cards • Flyers • Brochures • Posters • Catalogs
Stationery • CD Case Calendar / Portfolio • Custom Print Work

Request Your Samples - Request Your Picket Today

www.sharpdots.com • toll free 877-742 7789 • info@sharpdots.com**sharpdots.com**

Your Online Resource For All Your Printing Needs

POSTCARDS

DIRECT MAIL MADE EASY

We are your one-source solution

- Postcards
- Mailing Services
- Lists

All in-house!

Turnaround Times:
Regular 7 Biz-Day
or 2 Day Express**FREE SAMPLES!**To order our latest postcard kit,
visit our website or call x1350
Please use promo code UK815**modernpostcard®**
800.959.8365 • modernpostcard.comChoose 207 at www.macworld.com/getinfo**BIG
POSTERS &
HUGE
DISCOUNTS**

FROM YOUR COMPUTER FILES

HIGHEST QUALITY PRINTS AT THE BEST VALUE. MOVING • STATE OF THE ART EQUIPMENT • UP TO 100% OFF

24" x 36" Full color print on 7 mil high or low gloss paper

\$25
NO MINIMUMS
VOLUME DISCOUNTS

36" x 48" Full color print on 7 mil high or low gloss paper

\$50
NO MINIMUMS
VOLUME DISCOUNTS

48" x 72" Full color print on 7 mil high or low gloss paper

\$125
NO MINIMUMS
VOLUME DISCOUNTS

FOR MORE INFO & PRICING VISIT OUR WEBSITE

www.BIGPOSTERS.com

CREATIVE JUICES PRINTING & GRAPHICS INC.

(in New York) Tel: 516-820-4533 Fax: 516-820-4534 • 14 Wolcott Rd., Levittown, NY 11756

1-888-880-HUGEChoose 177 at www.macworld.com/getinfo**Macintosh
Service & Support**Nationwide, On-Site Office & Home
Provided by Local Mac Solution Experts

- ◆ Troubleshooting
- ◆ Networking
- ◆ Upgrades
- ◆ Graphics
- ◆ Training
- ◆ Database
- ◆ Digital Video

Mac
Solution
Experts**1-877-865-6813**
www.MacSolutionExperts.com

**WHY IS THE COMPETITION
SHAKING?**

**BECAUSE
1-800-4-MEMORY
IS HERE**

**WE CAN BEAT
ANY QUOTED PRICE ON ANY
MEMORY FOR ANY COMPUTER
(NOTEBOOK, DESKTOP,
PRINTERS) ANYWHERE . . .
PERIOD!**

- LIFETIME WARRANTY
- FREE TECH SUPPORT
- NO CREDIT CARD SURCHARGE
- MOST ORDERS SHIPPED SAME DAY

**CALL AROUND
THEN CALL US**

CHECK OUR WEB SITE FOR SPECIALS
WWW.18004MEMORY.COM

CALL SILICON VALLEY CD

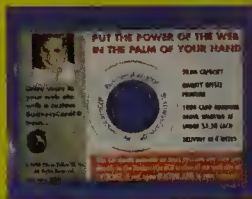
FOR CUSTOM SILKSCREENED BLANK CD-R DISCS, AND...



CD/DVD MANUFACTURING
AND PACKAGING



CD-R DUPLICATION WITH
CUSTOM PACKAGING



BusinessCardCD™
OPTICAL BUSINESS CARDS

Why use Silicon Valley CD? Listen to a satisfied customer:

Our client as well as our own crew could not be happier with the work you did for us. As I stated in my earlier e-mail, prompt, courteous and thoroughly professional...and a beautiful product!

— M.E. Morganteen
President, Design 5 Creatives
June 13, 2002

**CALL TODAY!
800-255-4020
WWW.SVCD.NET**

**FAST Turnarounds
EASY Ordering**



ORDER BLANK CD-R DISCS AND
SUPPLIES IN OUR ONLINE STORE!



SILICON VALLEY
CD since 1992

44799 Industrial Drive, Fremont, CA 94538 Tel: 510-933-1224 Fax: 510-933-1225

RAMJET

Save Money
on Top
Quality RAM

Memory
Same Day Shipping

Educators:
PO's Accepted
from Schools &
Government
Institutions.

"When I called, I talked to a
LIVING PERSON right from the
start who was knowledgeable!
How rare these days."

Educational
Discounts
Available.

Secure Online Ordering at:

www.ramjet.com

1-800-831-4569

Ramjet Quality Means:

1. Faster System Performance
2. Fewer Crashes & Lock-Ups
3. No Hassle Advanced
Replacement Policy



Spend More Time Creating, Less Time Re-Creating

MEMORY

DATA MEMORY SYSTEMS - CALL 800-662-7466

Lifetime Memory Guarantee - 30 Day Money Back

AC Adapters
Batteries
Cables
Camera Memory
DIMMs
MacCPU Upgrades
Iomega Stuff
Modems
Monitors
Networking
PowerBook Memory
Printer Memory
SDRAM
SIMMs
Storage Drives
Surge
Suppressors



Memory

- ✓ PC66 SDRAM
- ✓ PC100 CL2/CL3
- ✓ PC133 SDRAM
- ✓ ECC & EDO

Networking

- Client/Server Systems
- Ethernet Cards & Conns.
- Hubs
- CAT5 Cabling

**DMS has all you need
to network your business**

**Since 1986, DMS has provided
customers with the best mem-
ory prices, guarantee and
service anywhere!**

Nothing has changed...

Secure Online Shopping

www.datamem.com

DMS
DATA MEMORY
SYSTEMS
24 Keewaydin Dr.
Salem, NH 03079
Fax: 603-898-6585

Best
Prices On

Memory

for all
Apple® CPUs

Lifetime Warranty



DDR RAM
in Stock!

Computer Model or Socket Type	RAM Type/Description	Prices listed by module MB size				
		32	64	128	256	512 1gb Kit
G4 Dual 1GHz/1.25GHz	DDR PC 2700	-	-	-	\$59	\$119 \$235
Xserve/G4 Dual 867	DDR PC 2100	-	-	-	\$59	\$109 \$215
G4 iMac®	PC-133 168 pin CL3	-	-	\$22	\$32	\$58 \$127
G4 AGP 466-Dual 1GHz	PC-133 168 pin CL3	-	-	\$22	\$39	\$76 \$149
PowerBook® G4	PC-100 144 pin CL2	-	-	\$26	\$36	\$99 \$195
G3/G4/iMac® 350-600	PC-133 168 pin CL3	-	-	\$22	\$32	\$59 \$117
PowerBook® G3	PC-100 144 pin CL2	-	-	\$26	\$32	\$69 \$135
iBook®/iMac® 233-333	PC-100 144 pin CL2	-	-	\$26	\$36	\$99 -
168 pin DIMMs		\$13	\$17	\$27	-	-
72 pin SIMMs		\$9	\$19	-	-	-

Note: The memory market is extremely volatile, check our website for the most up-to-date pricing.

Plus, Insanely Great Deals!

Hard Drive Fire Sale!

Size	RPM	Type	Internal/External	Price
60gb	7200	FireWire® Oxf 911	E	\$169
80gb	7200	FireWire® Oxf 911	E	189
120gb	7200	FireWire® Oxf 911	E	249
20gb	4200	IBM 9.5mm/Laptop	I	105
30gb	4200	IBM 9.5mm/Laptop	I	139
40gb	4200	IBM 9.5mm/Laptop	I	159
60gb	5400	IBM 12.5mm/Laptop	I	359
External 3.5 FireWire case w/ Oxf 911				69

Software & Specials!

ThinkFree Office	\$ 37
AirPort® BaseStation-Gray	149
Mac®OS 9.0 w/Free 9.1 CD	89
Mac®OS 8.6 w/Free 8.5 CD	79
Mac®OS 8.1 CD only	39
Microsoft Word/Entourage 2001	WOW! 99
Kensington Flylight USB	16
DVD-R Blank Media 10-pak	SO LOW! 19
Macally PCI Card Dual USB 2.0	24
Griffin PowerMate Jog Shuttle	40
Griffin iMate USB/ADB Adapter	35
Griffin iMic USB Audio Adapter	30
Dr. Bott ADC/VGA Extractor	27
G4Port Internal Serial Port	39
LaCie FireWire DVD-R/RW+CD-RW	429
LaCie USB pocket Floppy Drive	49
LaCie CD-RW 48x12x48 USB/FireWire	189
LaCie Pocket CD-RW 24x10x24 USB/FW	257
LaCie Electron 19 Blue Natural Flat	FREE 389
LaCie Electron 22 Blue Natural Flat	Shipping! 939
Contour Designs Shuttle Pro	89
Color Keycaps for Final Cut Pro	69
Pioneer DVR-104 DVD-RW Internal	265

Macs, Macs, Macs! New, Refurbs & Discontinued Models, too!

Power Mac® G4
All new DUAL configs
PLUS... **Free 256mb RAM & Free Shipping!**

G4 iMac
800 MHz/CD-RW
PLUS... **Free 512mb RAM & Free Shipping!**

iMac G3/500 \$749
Special Purchase!!
128/20gb CD-ROM
PLUS... **Free 512mb RAM & Free Shipping!**

Western Digital D540X
IDE/ATA Internal 120 GB \$124

Can't find it?
New Macs! Discontinued Macs! Refurbs! We've Got It!

Word/Entourage 2001
Only \$99 - Insanely Great Deal!

TRADE UP YOUR G4 NOW! CALL FOR A QUOTE 1-800-80-WE BUY

*Check website for details on new computer purchases. Not responsible for typographic errors. Limited to stock on hand. Not valid in combination with any other promotions.

www.macsolutions.com

MAC Solutions

Mac Solutions, Inc.
11933 Wilshire Boulevard
West Los Angeles, CA 90025
Phone: (310) 914-3200
Fax: (310) 940-4433
Business & General P.O.'s Noted
©2001. Prices subject to change without notice. Ad code 486

G4/733
Discontinued Model
Super Sweet Deal!

Authorized Reseller **Apple Specialist**

800-873-3726

www.macsolutions.com

STUDENTS!

Save up to **75% OFF**
popular software!

Thousand Of Titles
Available!!

Student Software Guide
Saves \$100 to \$500!

Adobe
Microsoft
Discreet
Avid
Macromedia
AliasWavefront
Softimage
Autodesk
Extensis
Alien Skin
Digimation
Symantec
Corel
ADAM
Wacom
Many More!

FREE CATALOG!
Serving Students, Faculty and Schools Since 1990

1-800-874-9001

www.JourneyEd.com

JourneyEd.com
Education Marketing
Offer for U.S. & Canadian degree-seeking students only.
Proof of student status required with order.

Choose 174 at www.macworld.com/getinfo

MEGA MACS.com

FREE Norton SystemWorks 1
(OEM) Available with any \$20 online purchase!

MS Office 98/Xtreme/X \$149/199/329

Apple Final Cut Pro 3 \$549

Adobe Premier 6 \$279

Adobe FrameMaker 7 \$499

Macromedia Freehand 10 \$159

OmniPage Pro X \$189

Intego NetBarrier X \$29

USB CDRW w/software \$58

Airport Bases/Airport Cards \$189/\$89

7 Port USB Powered Hubs \$19

Thousands of items for your Mac!

918-664-MACS(6227) WE BUY MACS!

fax: 918-663-6340 Prices rounded down & may change

SHOWCASE

YOUR PRODUCTS

TO OVER 2 MILLION READERS

*SOURCE: INTELLIQUEST CIMS v. 8.0

Macworld

1.800.597.1594

ACADEMIC DISCOUNTS

Save Up To **80%**
on Name Brand Software

FULL VERSION ACADEMIC PRICES FOR STUDENTS & TEACHERS

Adobe®	Microsoft®
Acrobat 5 Save 77%	Office X Save 60%
Photoshop 7 Save 52%	NewTek®
Illustrator 10 Save 77%	LightWave 3D 7.5 \$395
Web Collection Save 66%	Procreate®
Design Collection Save 60%	Painter 7 \$199
Macromedia®	KnockOut 2 \$145
Flash MX \$94	KPT Effects \$79
Dreamweaver MX \$94	Wacom®
Studio MX \$189	Graphire2 \$84
Director 8.5 \$324	

ALL MAJOR MANUFACTURERS...
ALL AT HUGE DISCOUNTS!

FREE UPS® Use Discount Code:
GROUND SHIPPING **MW111**
When You Order.

1-800-333-8571

VISIT US TODAY:
AcademicSuperstore.com

**ACADEMIC
SUPERSTORE**

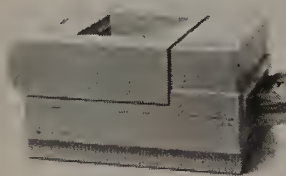


SHREVE SYSTEMS

For all of this and more-check out our website! <http://www.shrevesystems.com>



LASERWRITER IINT



\$100

without toner

Low Price

LOGIC BOARDS!

On Clearance now!

iMac (233-333Mhz)- **\$199**
G3 Logic Boards - **\$199**
G4 Logic Boards - **\$249**

*processor not included



7200/75 Logic Board

ONLY \$10.00!

Quicktake 150



Only \$49!

1.44 SuperDrives

ITEM#661-0474



BRAND NEW

STARTING AT \$2

Firewire 3.5" Drives

20/30 GB available!
Call for best prices!

20 GB
ONLY \$89

30 GB
ONLY \$119



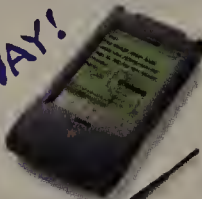
MacAlly Extended Keyboard



NEW!

Apple Video...\$10 Apple iMac radio system...\$10
Vector 350 watt DC/AC Conv. \$19
Focus LTV Pro 575...\$5 Apple Ethernet AUI Adapter...\$10
Paper Shredder...\$5 Kensington Notebook Keypad...\$10
Pas 16 Cards...\$2 Apple iMouse Cards...\$5
Apple Ethernet Nubus Card \$19 Apple 16 nubus adapter...\$2
Apple Centris 660 Nubus Adaptor...\$2 Apple iIS 25 Ext drives \$5
Apple 3001 CD...\$19 Apple 3001 CD...\$10

NO WAY!



Newton MessagePad 130
only **\$49**

POWERBOOK 5300cs

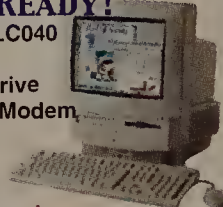
FREE CARRY BAG!

- Supports ext. video
- 8MB RAM
- 750 Hard Drive
- 100-MHz 603e
- Dual-scan color
- Refurbished

ONLY \$149

MACINTOSH LC580 INTERNET READY!

- 33-MHz MC68LC040
- 8MB of RAM
- 800MB Hard Drive
- 28.8 Motorola Modem



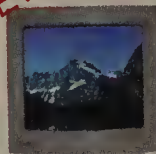
ONLY \$79

with CD

Cyberdrive 24X internal...\$49 Apple 8X int CD...\$49 6100 Dos Card...\$5
VST 250 inter. zip for Wall Stree...\$49 VST 20 gig Ext HD...\$89 Duo 230-280 batti...\$19
VST super drive for int.pb. wall st...\$69 Mac II power supply...\$5 5200/75 cpu...\$69
7100/66 mhz cpu...\$49 7300/180 mhz...\$149 7100/80 mhz cpu...\$69
7200/120 mhz...\$129 4gig HD (needs Adapter)...\$99 Magnum 144 Modem...\$2
Apple Laser 12/640 500 sht Feeder...\$49 Adapter for Quicktake 100/150...\$5 Apple 5212 CPU...\$99
Apple 5260 CPU...\$99 Apple 8550 CPU...\$199 Apple 950 CPU...\$99
Apple Videophon Kit...\$19 Apple Mac II CPU...\$10 Apple Mac I/ci CPU...\$19
Apple SE CPU...\$79 Apple II SI CPU...\$29 Apple Quadra 700 CPU...\$29
Apple IIE CPU...\$99 Apple WGS 6150 CPU...\$69 Apple 630 CPU...\$29
Apple Quadra 610 CPU...\$19 Apple LC II CPU...\$29 Apple LC II CPU...\$29
Zip Drive Ext. 100...\$69 Apple WGS 7250 CPU...\$99 Used Apple keyboards...\$5
Apple ColorLase.r 12/600...\$499

CLEAR OUT PRICES!!!

NEW!



Voxon Monitors
AS LOW AS \$29!

Factory Refurbished

IMAGING PRODUCTS

Apple QuickTake 150...\$49
Apple QuickTake 100...\$29

Apple 1.44 internal floppy 661-0121...\$15
Diamond Javelin Card...\$19
US Power Peripherl USB Mouse...\$5
Apple 610 Nubus Adapter...\$2
Apple Centris 660 Nubusadapter...\$2
Global Village teleport gold int. modem...\$1
Kennsington USB Videocam...\$15
VST 30 gig Ext. H.D...\$99
LC Power Supply...\$50
8100 or 840 power supply...\$19
Epson Personal Document Scanner...\$5
PDA Leather case...\$2
1/2 height 160 meg int. SCSI HD.CALL
Apple 13" RGB monitor(no cable)...\$29
Rastorops 15" FDP Monitor...\$19
Apple 1 meg VRAM simms...\$5
Apple LC 580 CPU...\$79
Apple Laser II NT...\$100
Apple LC CPU...\$19
Apple Image II...\$49
Apple portable Battery Charger...\$2
Apple geoport telecom adapter...\$10
Powerbook G3 battery...CALL
GlobalVillage 19200bps for pb 500...\$10

Quadra 660AV NuBus Adapter...\$2
Quadra 610 Nubus Adapter...\$2
IIsi Nubus adapter...\$29
Diamond Javelin 3200...\$19
*PowerMac HPV Card (1MB)...\$49
*PowerMac A/V Card (2MB)...\$49
*Radius Precision Color 8/1600...\$29
Apple Stylewriter Ethernet adapt.\$10
Ext. CD 2X...\$29
3.5 Ext. SCSI Case...\$39
7200, 7500, 7600 power supply...\$49
6400 or 6500 power supply...\$49
Q900 or 950 power supply...\$29

PRINTERS

HPDeskjet890CM,NEW...\$249
Apple StyleWriter 1200, refurbished...\$179
Apple Stylewriter 1500, factory refurbished...\$229
Apple StyleWriter 2400, color incl., refurbished...\$229
LaserWriter IInt, refurbished...\$99
LaserWriter IIf w/5MB RAM, refurbished...\$399
LaserWriter IIG w/5MB RAM, refurbished...\$449
Texas Instruments Micro Laser Pro E NEW...\$299
Laser toner cartridges sold separately

Items Under \$10

Daystar cache adapter Ic III Gravis mousestick II
Fellow Mous Pen Rasterops 24 MX card
Apple Mac SE bus PC price card Mac II CPU

MACINTOSH LOGIC BOARDS

G3 logic board, No Processor, No ROM...\$199
7200/90 logic board, refurbished...\$79
LC logic board, refurbished...\$5
LC II logic board, refurbished...\$10
Mac LCIII logic board, refurbished, exchnng...\$29
Performa 630 ,No Processor, refurbished...\$19
Quadra 950 logic board, refurbished...\$49
7100/66 logic board, refurbished...\$49
6200/75 logic board, refurbished...\$29

MONITORS

Apple 14" A/V refurbished...\$49
Apple 14" Multiscan, refurbished...\$39
Apple 15" AV, factory refurbished...\$79
Apple MultiScan 17", refurbished...\$99
Voxon 14" MultiscanNEW...\$39
Voxon15"MultiscanNEW...\$39
Power Computing 15" rebish...\$59
Power Computing 17" refurbished...\$79

APPLE PC COMPATIBILITY CARDS

Pentium100MHz,refurb...\$39
Pentium166-MHz, 12"PCI card \$69
586 100-MHz,7"PCIcard,refurb...\$99
486/66 Mhz for 6100 ser,NEW...\$29

LIMITED QUANTITY ITEMS

VST USB Ext floppy...\$49
Curtis MVP mouse...\$2
Powercurve 120 mhz cpu...\$29
Apple Laser Select...\$149

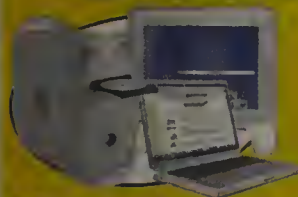
*Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors. All trade-ins MUST BE in working condition. Refurbished systems may include like-new components and may also include cosmetic blemishes which do not functionally impair performance of the hardware.

www.shrevesystems.com

Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors.

1-800-227-3971

Call the Mac Experts!



Whether you're looking for good deals on new, used or refurbished, PowerMax is the place to shop! Check out www.powermax.com for our huge list: from \$30 PowerMacs (with a 90 day warranty) to super-fast dual processor G4s!

Why Shop PowerMax?

- Hundreds of Mac models to choose from
- Great deals on used and refurbished models
- Knowledgeable, non-pushy salespeople
- Great tech support
- No voice mail (during office hours)
- We consult on all Mac hardware & software
- No rebate games or hidden charges
- Every Mac system is thoroughly bench-tested, and then personally verified and approved by your specific consultant
- We answer the phone: "How can we help you?" not "May I take your order?"
- We live in Oregon, where there is no sales tax and the people are friendly and polite
- We take trade-ins, and sell every type of quality Macintosh possible.
- All we do is Macintosh—our company is run entirely on Macs.

And all this for the same or lower prices as the no-service guys!

A Mac For Just \$25?

It's true! PowerMax has an extensive lineup of used macs. All with a 60-day warranty!

7100/66 MHz, 40 RAM, 500 Mb,	\$25
7100/75 MHz, 88 RAM, 500 Mb. CD	\$50
604/150 MHz, 32 RAM, 2 Gb, CD-ROM	\$75
PowerBook 5300GS, 40 RAM, 500 Mb	\$166
7300/180 MHz, 48 RAM, 2 Gb. CD	\$261
PowerBook 5300C, 16 RAM, 750 Mb	\$310
Beige G3/266 MHz, 192 RAM, 4 Gb, CD	\$367
9500/225 MHz, 256 RAM, 1 Gb, CD, Jaz	\$419
Beige G3/300 MHz, 256 RAM, 4 Gb, CD	\$529
G3/350 MHz, 320 RAM, 6 Gb, CD-ROM	\$627
Beige G3/500 MHz, 128 RAM, 30 Gb, CD	\$749
G4/400 MHz, 256 RAM, 20 Gb, DVD	\$899
G4/450 MHz, 256 RAM 27 Gb, DVD-RAM	\$959

FREE RIO™ 600 MP3 PLAYER!

That's right! Buy a new or refurbished iMac and get one of these nifty Rio™ 600 MP3 players. This super-compact unit comes with headphones, USB cable, software and more!

Ask About Our Free RAM Offer!

software SPECIALS!

Microsoft Office 10.0 For OSX
ONLY \$395!
Get A Free ShuttlePro w/ Final Cut Pro 3 Purchase!

Looking For a Digital Camera?

We carry cameras from these top manufacturers:

Canon • Nikon • Epson Casio • Hewlett/Packard Kodak • Minolta • Olympus Sony • Toshiba

Get Your Claws Into Jaguar!



The new Mac OS X version 10.2 Jaguar is loaded with new features like QuickTime™ 6, Rendezvous, iChat, a unique junk email filter and much more!

Only \$125!

Lexmark Optra WorkGroup Printer
Special: Save Over \$1,000!



New units! 24 pages per minute, 1200 dpi, 16 MB RAM, 10/100 Ethernet

GREAT DEALS FROM LACIE

Portable CD-RW

USB 2.0 ready CD-RW 24x10x40x SE2100 case

Only \$119

LACIE DRIVE SPECIALS

40Gb FireWire™ ..\$179
60Gb FireWire™ ..\$219
40x12x48 CDRW ..\$199
48x12x48 CDRW ..\$249

VALUE-PRICED PACKAGE DEAL!

This used system is a great deal for the value-conscious Mac user! Includes a 17" Studio Display and a G4/450 MHz with 384MB RAM, 20 GB HD and DVD-ROM

Only \$1199



This digital microscope captures images on your computer screen at 10X, 50X, 100X even 200X magnification! Also great for creating unique new design patterns

Only \$219!

(Mac or PC)

Macs For Every Price Range!

Units are factory refurbished (unless otherwise noted) with a one year Apple warranty. Buy AppleCare and get a three-year warranty and much more!

iBooks

G3/600 MHz, 128 RAM, 20 Gb, CD-ROM. ...\$1069
G3/700 MHz, 256 RAM, 30 Gb, Combo\$1699

Titanium PowerBooks

G4/550, 256 RAM, 20 Gb, DVD/56K Mod. \$1888
G4/667, 512 RAM, 30 Gb, Combo\$2399
G4/800, 512 RAM, 40 Gb, Combo Drive ..\$3099

G4 Towers

G4/733 MHz, 128 RAM, 40 Gb, CD-RW ...\$1188
G4/Dual 800 MHz, 256 RAM, 60 Gb, SprDrv \$1949

iMacs

G3/500, 64 RAM, 20 Gb, CD/56K Modem ..\$629
G3/600 SE, 256 RAM, 40 Gb, CD-RW\$829
G4/700, 128 RAM, 40 Gb, CD-RW\$1199
G4/700, 256 RAM, 60 Gb, Combo Drive ..\$1349

eMacs

G4/700, 128 RAM, 40 Gb, CD-RW\$949

Displays

Apple Used 15" Multiscan\$79
Apple Refurbished 15" Studio LCDCALL
Apple Used 17" AppleVision\$109
Viewsonic Used 17" Graphics Series\$119
Apple Used 17" ColorSync\$139
Apple Used 17" Multiscan\$129
Apple Used 17" Blue & White Yosemite ..CALL
Apple Used 17" Studio\$199
Apple Refurbished 17" Studio LCDCALL
Apple Used 21" GraphiteCALL
Apple Refurbished 23" Cinema LCD\$3099

Printers

Epson Stylus 820 Silver\$99
Lexmark Optra S 2455N Laser Printer ...\$1099

GET \$100 OFF!

Microsoft Office for OSX with any new Mac or Mac OSX purchase!

Need Financing? We Can Help!

Ask us about:



SUPER SPECIALS!



Get This Full Macro-Media Suite For \$399! With Any New Tower Purchase!*



Add A Second Display With A High End Video Card! From \$79!



A new laser printer for only \$129? Ask us how!



Refurbished Iomega Predator 4x4x6 USB CD-RW only \$69!

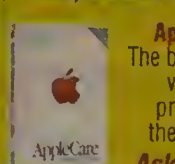


Add some Zip to your PowerBook for just \$50



Canon ZR25* blowout! A digital camcorder for only \$399

*Factory refurbished units



AppleCare: The best extended warranty program in the industry: Ask Us Why!

POWER MAX

Order Online or Call One of Our Mac Experts!

www.powermax.com

Daily specials & blowouts • Bargain Basement Deals • New, used & refurb lists
Digital video packages • Important National Macintosh News Updated Daily!

800-613-2072

Local: (503) 624-1827 • Fax: (503) 624-1635

email: sales@powermax.com

Knowledge is Power

Personal Financing • Fast P.O. Approvals • Business Leasing • Weekly specials on our web site

Are You A Member Of A User Group?

www.applemugstore.com

Apple Macintosh User Group

Macintosh User Group members enjoy access to a very special Apple-sponsored web site featuring super deals on the latest Apple products and more! If you are currently not a member of an Apple User Group and would like access to the MUG Store special offers, discounts, and resources, contact an Apple User Group near you to sign up.



Choose 208 at www.macworld.com/getinfo

visit **macsales.com**

School / University / Government / Corporate Purchase Orders gladly accepted. (Subject to credit approval)



Open Mon - Fri 8:30am - 8:00pm & Sat 10am - 4pm CST

Other World Computing

Serving the Mac Universe since 1988

800.275.4576

OS X ON LEGACY MACS!
FREE Installer
Software from OWC



finalist
macworld
eddy's

eshop.macsales.com/osxcenter

Have the Power of X on your Pre-Beige G3 PowerMac!

Excellent Service

Competitive Prices

Quality Products

Expert Tech Staff

Other World Computing has the Memory, HD, or Accelerator for your Mac! Not sure what you need? Call our Mac Experts for free assistance, or use our Online Guide at <http://eshop.macsales.com/myowc>

Legacy Mac memory

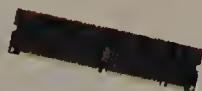
Memory for your Legacy Mac and Mac clone!



168PIN Mac 5V DIMMs 60ns/70ns

Non EDO

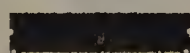
64MB **\$21.75** 128MB **\$25.99**



EDO

64MB **\$21.99** 128MB **\$26.95**

168PIN 3.3v Mac DIMMs EDO 60ns



32MB **\$17.99**

64MB **\$24.99**

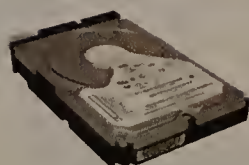
72PIN FPM SIMMs for 60ns/70ns



32MB **\$11.99**

64MB **\$17.95**

3.5" SCSI drives



500MB Major Manufacturer **\$9.95**

1" Low Profile, 90 day OWC warranty

9.1GB IBM UltraStar 18ES 7200rpm **\$54.95**

7.0ms, 2048k Buffer, 1" LP, new w/1yr OWC warranty

18.4GB Seagate Barracuda 36ES 7200rpm **\$169.95**

8.5ms, 2048k Buffer, 1" LP, new w/3yr Seagate warranty

36.7GB IBM UltraStar 73LZX 10000rpm **\$149.95**

4.9ms, 4096k Buffer, 1" LP, new w/1yr OWC warranty

ATA/IDE PCI cards

Use ATA / IDE (3.5") hard drives in ANY PowerMac with a PCI slot!



SIIG, Inc.

ONLY \$79.97!

Ultra133 ATA/133 Mac PCI Controller

Above three cards compatible with ALL Apple PowerMac models and compatible Mac Clones with an available PCI Slot. Will allow use of up to 4 IDE/ATA Hard Drives.

ACARD AHard PCI Ultra ATA/66 Mac PCI Controller **\$59.95**

Sonnet Trio ATA/133 + FW + USB Mac PCI **\$179.95**

Memory for Apple G3/G4 PowerMacs, PowerBooks, iBooks, iMacs & Cubes!

PC133 CL2 & CL3 SDRAM DIMMs



For all PowerMac G3 Models, PowerMac G4 350-500MHz (except G4/466MHz which requires PC133), All G4 Cube Models, and iMac G3/350-700MHz

128MB **\$24.99**

256MB **\$34.99** 512MB **\$79.99**

Apple Includes only standard PC133 CL3 memory, but you can get extra performance by upgrading to High-Performance PC133 CL2

256MB PC133 HiPer CL2 2-2-2 **\$49.95**
512MB PC133 HiPer CL2 2-2-2 **\$89.95**

DDR CAS 2.5



PC2100 DDR 266MHz CAS 2.5

For Xserve, PowerMac G4 Dual 867MHz

256MB **\$59.95**

512MB **\$119.95**

PC2700 DDR 333MHz CAS 2.5

For Xserve, PM G4 Dual 867MHz -1.25GHz 'Mirrored Bay' Models

256MB **\$79.99** 512MB **\$159.99**

PC2700 is backwards compatible with PC2100 and may also be used in models that require only PC2100

PC100 CL2 SDRAM DIMMs

For all PowerMac G3 Models, PowerMac G4 350-500MHz(except G4/466MHz which requires PC133), All G4 Cube Models, and iMac G3/350-700MHz Models.



128MB **\$28.97** 256MB **\$44.97***

256MB **\$49.97**** 512MB **\$89.97****

* For all PowerMac G3 models & PowerMac G4 'Yikes' PCI models ONLY!

** For PowerMac G4 AGP / Sawtooth models, G4 Cube, iMac 350-700MHz ONLY

Also compatible with Intel / AMD based 'Wintel' machines.

3.5" ATA/IDE drives



Call or visit
www.macsales.com for new
180GB & 200GB drives!

20GB Maxtor DiamondMax 541DX **\$65.99**

5400rpm, <12ms, 2048k cache, ATA/100, 3yr Maxtor warranty

40GB IBM Deskstar 120GXP 7200rpm **\$79.99**

5400RPM, <12ms seek, 2048k cache, ATA/100, 3yr Maxtor warranty

60GB IBM Deskstar 120GXP 7200rpm **\$97.95**

8.5ms seek, 2048k cache, ATA/100, 3yr IBM warranty

80GB Seagate Barracuda IV 7200rpm **\$125.99**

8.9ms seek, 2048k cache, ATA/100, 3yr Seagate warranty

120GB IBM Deskstar 120GXP 7200rpm **\$159.99**

8.5ms seek, 2048k cache, ATA/100, 3yr IBM warranty

120GB Western Digital 7200rpm SPECIAL **\$195.99**

JUMBO 8MB cache, ATA/100, 3yr WD warranty

Note: Above ATA Drives are fully compatible with all versions of vanilla ATA/IDE, ATA/33, ATA/66, ATA/100, ATA/133, EIDE, UDMA, Etc. Drives may be used with any Mac that has built in IDE/ATA or an added ATA/IDE controller (such as by VST, Acard, Sonnet).

Use ATA Drives in ANY PCI PowerMac! Don't have IDE/ATA built in or want a faster ATA/133 interface? OWC has the answers!

PC133 CL3 SO-DIMMs

For Apple iBook 300-600MHz, iMac G4/700-800MHz, PowerBook G3 FireWire (yr 2000, aka Pismo), PowerBook G4 models 400MHz - 667MHz



128MB **\$27.99**

256MB **\$45.99**

512MB **\$87.99** For iMac G4 & G3 'Pismo' ONLY!

512MB **\$127.99**

Above memory operates PC100 CL2 in models utilizing PC100 memory.

PC100 CL2 SO-DIMMs



Apple iMac 233/266/333MHz models (all Rev A-D), PowerBook G3 Wallstreet (1998), PowerBook G3 Lombard (1999).

128MB **\$27.95**

256MB **\$57.95** 256MB Low Profile **\$61.99***

* Now you can have up to 512MB in your iMac or above PowerBook model

Norton SystemWorks Bundle

only \$8.97!



• Compatible with OS 8-9.x and OS X!
• Includes Norton Utilities 6, Norton AntiVirus 7, and Dantz Retrospect Express!

2.5" ATA/IDE notebook drives



For Apple iBook Models*, PowerBook G3 & G4, PowerBook 150/190/1400/5300, Duo 2300/2400, 20th Anniversary Mac; PC/Wintel Laptops. The iBook models require 9.5mm drives.

20.0GB Fujitsu MHR202AT **\$99.97**

4200RPM, 2048k Buffer, 9.5mm, Slim, 3yr warranty

20.0GB IBM Travelstar 40GNX 5400rpm **\$127.99**

5400RPM, large 8MB Buffer, 9.5mm, Super-Slim, 3yr IBM warranty

40.0GB IBM TravelStar 40GN **\$159.99**

4200RPM, 2048k Buffer, 9.5mm, Slim, 3yr warranty

40.0GB IBM Travelstar 40GNX 5400rpm 9.5m **\$219.99**

5400RPM, large 8MB Buffer, 9.5mm, Super-Slim, 3yr IBM warranty

60.0GB Toshiba MK6021GAS **\$299.95**

4200RPM, 2048k Buffer, 9.5mm, Super-Slim, 3yr Toshiba warranty

60.0GB IBM Travelstar 60GH 5400rpm **\$359.99**

5400RPM, 2048k Buffer, 12.5mm, 3yr warranty

Put your existing notebook drive into a FireWire or USB Case!



• OWC Mercury Express 2.5" USB 1.1 Kit **\$29.95**
• OWC Mercury Express 2.5" FireWire Kit **\$54.95**

visit **macsales.com**

School / University / Government / Corporate Purchase Orders gladly accepted. (Subject to credit approval)

Open Mon - Fri 8:30am - 8:00pm & Sat 10am - 4pm CST

Other World Computing

Serving the Mac Universe since 1988

Excellent service

Competitive prices

Quality Products

Expert Tech Staff

Mercury FireWire and FireWire / USB 2.0/1.1 Storage Solutions

Top-Rated OWC Mercury Elite FireWire Solutions are ideal for today's high speed Storage, Audio/Video, and Backup needs! High Performance and Superior Reliability come in this Elegant solution by means of the best components coupled with the Oxford911 bridge solution with data rates exceeding **40 MEGABYTES PER SECOND!**

Plug and Play compatible with Apple OS 8.6-9.2.2, OS X; Windows 98SE, 2000, XP; Any OS with FireWire or USB* support.

Key Features: Cool Blue Activity Indicator, Near Silent Drive Operation, Large 2MB Data Buffer, Fully Audio/Video Capable, 2 FireWire Ports, 2 USB Ports*, All Connecting Cables Included, Intech Speedtools Performance Utilities Included, Data Rates in **EXCESS OF 40 MEGABYTES PER SECOND!** *FireWire + USB models only

James Coates of the Chicago Tribune
"Mac users likely will just break into smiles when they plug this high speed hard drive into the FireWire ports on their machines."

MyMac.com review
5 out of 5

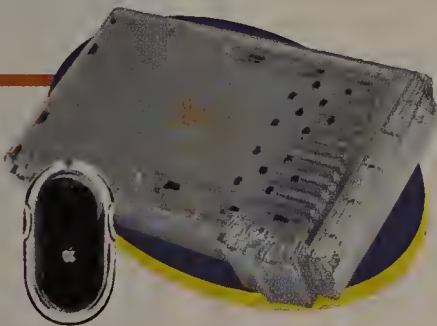
MacAddict RATED
GREAT

intech
SOFTWARE CORPORATION

All OWC Mercury FireWire Hard Drives include Intech's SpeedTools Utility for Mac.

OWC Mercury Elite

	FireWire	FireWire/USB 2.0/1.1
40GB 7200RPM	\$159.99	\$179.95
60GB 7200RPM	\$179.99	\$199.95
80GB 7200RPM	\$199.99	\$229.95
120GB 7200RPM	\$279.99	\$299.95
180GB and 200GB NEW! Call!		



OWC Mercury CD-R+RW / DVD-R+RW Solutions

Burn your own DVDs and CDs for Movies, Presentations, Backup, Music CDs, and More! OWC Mercury FireWire and USB solutions make it easy!

OWC Mercury 40x12x48x CD-R+RW External Solutions
FireWire **\$189.99**; FireWire + USB 2.0/1.1 Combo **\$209.99**

Features Teac BumpProof Technology and large 8MB Data Buffer. All Cables, Roxio Toast 5.1.x, 25 pieces CD-R Media, 1 Piece CD-RW Media included. Fully compatible with Apple iTunes and many others.

OWC Mercury Pioneer DVR-104 DVD-R+RW + CD-R/RW Solution
FireWire **\$399.95**; FireWire and USB 2.0/1.1 Combo **\$419.95**

Features the latest Pioneer Mechanism equivalent to what Apple features in SuperDrive equipped models. Fully compatible with iTunes, Apple DVD Studio Pro, Toast, and many others. All Cables, CharisMac DiscRite 5.x, 5 Pieces of DVD-R 2X Media, 25 Pieces of CD-R Media included.



Mercury On-The-Go FireWire Drives

The OWC Mercury On-The-Go is the lightest and most compact high performance FireWire solution available! With the same Oxford911 bridge as our Elite Series, these gems sustain data rates in excess of **35 MEGABYTES PER SECOND!**



Plug and Play compatible with Apple OS 8.6 - 9.2.2, OS X; WindowsSE, 2000, XP; Any OS with FireWire Support.

Key Features: Shock Absorbent design isolates drive mechanism from casing, Cool Blue Activity Indicator, Near Silent Drive Operation, Large 2MB Data Buffer, FireWire Cable and Power Adapter included, may be bus powered or powered using included Power Adapter. Intech Speedtools Performance Utilities Included.

PCI FireWire/USB cards

Add FireWire and/or USB to your Mac from only **\$24.97!**

There are thousands of USB and FireWire products you can use with just the addition of a simple PCI card!



OWC Lucent **\$24.97**
3-port PCI FireWire Card

Compatible with OS 8.6 and higher, including OS X

MacAlli 2 FW & 2 USB 2.0 / 1.0 PCI **\$79.95**
OrangeMicro 4 FW & 5 USB v1.1/2 **\$119.95**
IBM CardBus PCMCIA 2 FW for Laptops **\$29.97**
MacAlli Dual USB PCI Card **\$24.95**

20GB 4200rpm **\$179.97** 20GB 5400rpm **\$199.97**
40GB 4200rpm **\$249.97** 40GB 5400rpm **\$299.97**
60GB 4200rpm **\$399.97** 60GB 5400rpm **\$449.97**

FireWire Cable and AC Power Adapter included.
Drive may be powered by FireWire Bus or with included power adapter.

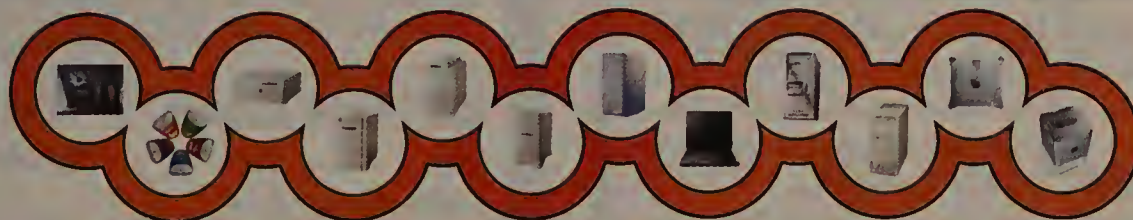
www.MacSales.com for our full line of FireWire Solution including Lacie and EzQuest products.

Make your PowerMac MORE POWERFUL with a faster G3 or G4 upgrade TODAY!

OWC



PowerLogix



SONNET

This is a fraction of the Mac Upgrades offered by OWC. Visit <http://www.FasterMacs.com> to see all the upgrades available for your specific Mac Models!

GO UP TO 1GHz!!



PowerLogix PowerForce
G3/400MHz with 1024k cache **\$119**
G4/450MHz with 1024k cache **\$229**
For 73/75/76/85/95/9600s & compatible clones



PowerLogix PowerForce Series 100
Series 100 1GHz(1000MHz) 2MB cache **\$779.95**
Series 100 800MHz upgrade 2MB cache **\$579.95**
For PowerMac G4 AGP and Cube Models. Up to TRIPLE the speed of your existing machine!



Sonnet Crescendo PCI
Crescendo G4/800MHz 2MB **\$399.95**
For 73/75/76/85/86/95/96 & compatible clones

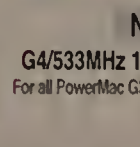
NewerTech NuPower Pismo
G4/500MHz 1MB upgrade **\$299.95**
Upgrade ANY PowerMac G3 FireWire (aka Pismo / yr2000) to G4/500 with 1MB Cache!



OWC Mercury G3 & G4 ZIF Upgrades

G3/533MHz with 1024k 2:1 Cache **\$179.93**
G4/450MHz with 1024k 2:1 Cache **\$189.94**
G4/550MHz with 1024k 2:1 Cache **\$265.94**

Upgrade any PowerMac G3 Beige, G3 Blue & White, G4 'Yikes' PCI Mac Model or XLR8 ZIF carrier! Includes 2yr OWC Warranty.



NewerTech NuPower
G4/533MHz 1MB ZIF upgrade **\$299.95**
For all PowerMac G3 Models; PowerMac G4 'Yikes' PCI



PowerON

• computer services •

8a-5p PST M-F
916-677-6227 tel
916-677-6228 fax

iMac 233Mhz

233Mhz Bondi Blue iMacs
Multiple Configurations
from \$299.99

*INTERNET READY

Beige G3

233Mhz to 333Mhz
DT, MT & AIO
from \$299.99

*INTERNET READY

iMacs IN STOCK

333Mhz to 400Mhz
All Colors Available
from \$399.99

*INTERNET READY

G3 B&W IN STOCK

350Mhz to 400Mhz
Blue & White Mini-Tower
from \$599.99

*INTERNET READY

7600/200Mhz
40MB/1GB/CD/ENET
*Free Modem \$139.99

5200/75Mhz
16MB/500MB/CD
*Free Modem \$79.99

5500/250Mhz
40MB/2GB/CD/TV-VI
*Free Modem \$149.99

MacOS 8.5 OEM CD
FREE web upgrade to 8.6
\$79.99

MacOS 9.2.1 CD
Full Install OEM CD Only
\$89.99

MacOS 10.0 (X) CD
Full Install OEM CD Only
\$89.99

Epson 1200u Scanner
USB Color
\$49.99

56k Serial Modem
V.90 Modem
\$59.99

3COM PCMCIA 56K
V.90 Modem, X-Jack
\$59.99

MEMORY IN STOCK
RAM & Upgrades
CALL for PRICE

TONER IN STOCK
Apple, HP & More
CALL for PRICE

INK IN STOCK
Apple, Canon & Epson
CALL for PRICE

Digital Camera

USB 800x600 max
Built-In Flash
only \$34.99

*Buy 5+ only \$27.99

Apple 17" Monitor

17MS, 1705, 1710, 720
"No Logo" Refurbished
only \$79.99

*Buy 5+ only \$69.99

XCLAIM VR PRO
RCA, S-Video, NTSC
\$59.99

17" TFT w/speakers
Retail Packed
\$549.99

Apple 20" MultiScan
"No Logo" Refurbished
\$149.99

G3/G4/PC to DB15
HD15 to Apple Monitor
\$19.99

Apple 15 MultiScan
"No Logo" Refurbished
\$49.99

Apple 15av MultiScan
"No Logo" Refurbished
\$59.99

CDROM
Apple Original Drives
2x to 24x SCSI, 8x to 32x ATAPI
from \$19.99

DVD ROM
Apple Original Drives
2x to 8x ATAPI DVD, DVD-RAM
from \$29.99

HARD DRIVE
80MB-2GB SCSI HD
50 pln, 68 pln, 80 pln
from \$9.99

24x SCSI CDROM
MacOS Bootable
\$39.99

Apple 2x DVD-ROM
G3/G4 BOOTABLE
\$29.99

4GB Apple Eprom
50 pln 3.5"x1"
\$69.99

iMac 24x CDROM
rayloading/Slotloading
from \$79.99

Apple 6x-8x DVD-ROM
G3/G4 BOOTABLE
\$59.99

IBM 9GB SCSI HD
50 pln 3.5"x1.6"
Mac Ready \$89.99

iMac Internal CDRW
Slotloading
\$149.99

Apple DVD-RAM
G3/G4 BOOTABLE
\$79.99

18GB Apple Eprom
68 pln 3.5"x1"
\$79.99

All prices include a 3% cash discount. 90day PowerON warranty. 20% restocking fee Returned/Refused items.
All brands and product names are registered to their respective holders and are respectfully acknowledged.

8801 Washington Blvd., ste. 101, Roseville, CA 95678

www.poweron.com

CALL or
ORDER ONLINE

800-673-6227

T.D. CURRAN

YOUR TOTAL COMPUTER CENTER



Titanium Travel Bag \$59
MSRP \$149.95

iBook Travel Bag \$39
MSRP \$99.95

*Get your free Titanium or iBook
Travel Bag with the purchase of any
new PowerBook G4 or new iBook
ONLY from TD Curran

*Get one
Free

STYLUS COLOR C60

- 2880 x 720 dpi Perfect Picture printing
- Ultra fast print speeds up to 12 ppm
- Improved web printing
- Creative home software
- USB and Parallel connectivity
- Standard one year limited warranty including EPSON Exchange program

NOW ONLY
\$79.95



Inkjet Cartridges

Epson C40 Black \$6.95
Epson C40 Color \$9.95
Epson C60 Black \$9.95
Epson C60 Color \$9.95
Epson C80 Black \$15.95
Epson C80 Cyan \$11.50
Epson C80 Magenta \$11.50
Epson C80 Yellow \$11.50
Epson 777 Black \$8.95
Epson 777 Color \$10.95
Epson 740 Black \$6.95
Epson 740 Color \$8.95
Epson 880 Black \$9.95
Epson 880 Color \$10.95
Epson 900 Black \$7.95
Epson 900 Color \$11.95
Epson 480/580 Black \$6.95
Epson 480/580 Color \$9.95

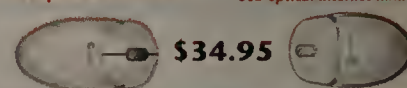
Toner Cartridges

HP C4127X \$89
for hp 4000, 4050 series
HP C8061X \$99
for hp 4100 series
HP 92298A \$39
for hp 4M, 5M series
HP 92274A \$49
for hp 4L, 4ML, 4P, 4MP
HP C7115 \$69
for hp 1200 series

Call for Quantity Discounts

iceMOUSE
USB optical internet mouse

iceMOUSEjr
USB optical internet mini mouse



\$34.95

IDE Hard Drives

2GB 5400RPM \$35
10GB 5400RPM \$59
60GB 7200RPM \$99 \$179
80GB 7200RPM \$109 \$189
100GB 7200RPM \$159 \$239
120GB 7200RPM \$179 \$259

Create your own FireWire Hard Drive

Dual
USB / FireWire
now only \$89.95

Connect your old 3.5" IDE drive to one of our new FireWire enclosures and give it a new lease on life. With the new Oxford 911 chipset our firewire case doubles the data transfer rate compared to earlier FireWire drives.

NOW ONLY
\$79.95



All Prices are Subject to Change

Gov't & School's fax your PO's to 360-594-1987

800-645-2533



Apple Specialist

800 Marine Drive, Bellingham WA 98225

www.tdcurran.com • sales@tdcurran.com

USED MACS



**MAC
OF ALL
TRADES
.COM**

800.304.4639

**BUY or SELL
ONLINE**

sales@macofalltrades.com

www.**MAC-PRO**.com
SYSTEMS & SOFTWARE .com
Buy • Sell • Upgrade • Repair • New • Used

We have It All In Stock!

- iMac, G3, G4
- PowerBooks
- Software & OS
- Hard to find items



Everything Mac!

Any Ad is a Mac Pro Ad

800-525-3888

sales@mac-pro.com Fax 408-369-1205

POINT OF SALE • INVENTORY CONTROL



CCD USB barcode
scanners starting
at only \$135.00

Software & Hardware for:

- Retail/Wholesale
- Mail Order/Distribution
- Rentals/Service/Repair
- Payroll/Check Printing
- Fully Integrated Accounting
- FileMaker™ & 4D™ Tools
- Multi-Site /Cross Platform
- Receipt Printers
- Barcode Readers/Printers
- Cash Drawers
- Mag Stripe /ID Cards
- Ribbons/Paper/Labels

ShopKeeper POS Software for Mac OSX

Free Catalog & Demo CD
or download demos
off of the website.

(800) 622-7670

www.posdirect.com

sales@posdirect.com • (618) 457-5351 vox • (618) 457-1632 fax

**P.O.S.
DIRECT**

SHOWCASE YOUR PRODUCTS TO OVER 2 MILLION READERS

*SOURCE: INTELLIQUEST CIMS v. 8.0

Macworld
800.597.1594

Classifieds

Macintosh web hosting & QuickTime streaming - Host your site on secure Mac servers - Publish your FileMaker database on the web - Access like an iDisk! - Stream QT Movies - Plans start @ \$100/year w/50MB of space.
www.macserve.net

Reach 400,000 circulation for as little as \$250.00 a month. Place a Classified ad in the Macworld Showcase!

For more information, contact Niki Stranz
or Carol Holmstone at 800-597-1594

IHNATKO

continued from page 128 >

to go out and *look* for available file servers? If my PowerBook is within AirPort range, shouldn't its hard drive automatically be included in a file search from my desktop? And let's try not to think about the awful, *awful* way Apple is explaining iSync. I was there when Steve Jobs demonstrated this "amazing, proof-of-alien-visitation" technology that *actually* lets you synchronize the address and calendar information from your desktop to your PDAs. I was smiling and nodding indulgently, as I do when my elderly aunt eagerly tells me that I should check out this wonderful new Web site called "eBay."

Think instead about that same AirPort-equipped PowerBook. Why should I have to spend time synchronizing my contacts, project files, Web bookmarks, and so on, between that thing and my desktop? Can't they put their heads together and figure it out on their own? Sure, someday, thanks to iSync and Rendezvous.

And just a few weeks after the keynote, I got a new Toshiba PocketPC e740: it's no larger than a conventional PDA, but it has built-in AirPort-compatible networking. Dare I imagine an iSync doohickey that will *finally* give PocketPC equal footing with Palm on the Mac?

iSync should be better than HotSyncing. My data should be synced automatically, the moment I pull into the driveway, thanks to Rendezvous. Then we'll have something.

The smartest thing about Rendezvous, though, is the fact that it's just Apple's trademarkable, T-shirt-worthy name for an open standard called zero-configuration networking. There are some things Apple doesn't get and maybe never will, but the power of a good open standard isn't one of them.

Microsoft's people still can't get their heads around this concept. When they decide that a good computer acts as a conduit for information, they say, "So if we build and control the standards for this basic conduit, we could control . . . the world!" The result is .Net, which isn't getting a lot of traction and has recently been co-opted by the open-source community.

"Great! This will only increase the relevance of .Net as a standard!" Microsoft's people respond, sounding suspiciously like the independent bookseller who reacts to the sight of a Barnes & Noble megastore under construction a block away by first insisting that it'll turn his neighborhood into a trendy "book district," thus bringing in loads of new business—and then by studying the ingredients of a T.G.I. Friday's Blender Blaster. □

Some things, Apple doesn't get—but the power of standards isn't one of them.

Contributing Editor ANDY IHNATKO finally got a chance to chat with Steve Jobs at Macworld Expo. The two didn't actually *talk*, but Andy managed to look at the tab on his jeans. Expect a new pair of pants for the holidays, Mr. CEO.

iSync and Rendezvous Aren't Sexy, but They're Vital

Mayor Jobs's Action Plan



MY IMMEDIATE REACTION TO STEVE JOBS'S KEYNOTE AT July's Macworld Expo was that Apple's CEO might finally be ready to graduate from the role of high-powered technology executive to that of mayor of a sufficiently industrialized major city. The skill that separates one-term mayors from mayors so good that they wind up with their own Food Network series is the ability to make boring but important news sound exciting.

Sure, it's easy to win the attention and support of voters when you're working with your A material: "We've bamboozled the federal government into giving us \$14 billion to turn all our ugly downtown overpasses into tunnels that will run underneath 50 acres of new parkland, there's a good chance that we can get Tony Bennett to be grand marshal of this year's Columbus Day parade, and it turns out that most of that stripper's testimony against me is inadmissible!" It's another matter entirely to comb your hair, adjust your tie, and then go on TV to announce that you're spending 40 million taxpayer dollars to improve a sewer system that's already perfectly adequate for the city's needs.

So it was quite a test when Jobs strode to the center of that big stage in Manhattan and showed off Mac OS's new sewer system: Rendezvous and iSync.

Hooray, Infrastructure!

Perhaps we're entering a time in the Mac's development when we've got to pay for all of Apple's spectacular product announcements of the past few years. Steve Jobs's rotating hydraulic platform has repeatedly levitated above the Macworld Expo stage to reveal great stuff—you know, like a desktop Mac made out of half a volleyball attached to an Etch A Sketch. That big projection screen behind Jobs has shown us a brand-new operating system that looks like a 1970s Hanna-Barbera cartoon, only with a lot more on-screen animation. And with every tick of the clock and visit to Apple's Web sites, we seem to get another great piece of free software that thrills and delights Mac users while sending commercial developers of consumer media software into fits of apoplexy (and then into a nearby T.G.I. Friday's to seek some form of employment stabler than Macintosh software development).

It's all pure Tabasco. Don't get me wrong. I loved Sherlock 3 (even when it hadn't yet been written and was called Watson) and I'm eager to get my hands on iCal (even though it means that the next Bloomin'

Onion I order will probably be served by the guy who wrote the calendar application I'm using right now).

But neither of those programs is an exciting peek into the Mac's future. Neither is Mac OS X, not anymore—it's now officially the Mac's present.

No, you can spy the *future* direction of the Mac through Rendezvous and, to a lesser extent, iSync. The ground keeps shifting under the feet of technology companies; a set of priorities that would have served a company well during the Clinton administration ("Acquire and hold on to the greatest number of desktops!") offers slippery footing during Bush: The Sequel. Somewhere between the time when the Smashing Pumpkins stopped and Bruce Springsteen resumed making records, the most important priority became creating the best and most reliable way to connect users with various sources of information.

One of the butt-kickingest features added to Mac OS in the past couple of years has been support of XML-RPC and SOAP. "*Blurgh?*" you ask. Yes, you probably don't know about these acronyms, and that's precisely how it should be. XML is a universal format for structured data (and much more, but why confuse things?); XML-RPC and SOAP are Net protocols that allow two pieces of software on two different machines to hand data back and forth, almost as if they were part of the same program.

These technologies make apps like Sherlock 3 not only possible but also actually useful. The new technologies let you attach Machine A, which lists what's playing at every theater in America; Machine B, which shows movie trailers; and Machine C, which turns street addresses into maps—all behind the scenes of your easy-to-use Sherlock movie plug-in.

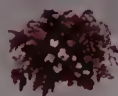
Anybody Out There?

Then there's Rendezvous, the ultimate glue: "If two devices can talk to each other," says Apple, "then, um, they *can* talk to each other, thanks to Rendezvous." It affects operations that are just plain operatic in scale, the kind that make us question our faith in a kind and loving God, such as setting up a network printer, and it also makes us wonder why even the simple stuff isn't simpler. Why, necessarily, do I have to tell the Finder

It's easy to win an audience when you're working with your best material.

< continues on page 127

Shopping List



Household Articles

DISHWASHING LIQUID ✓

SOAP ✓

TOILET PAPER ✓

Meats and Poultry

CHICKEN WINGS

~~BACON~~

ROAST BEEF ✓

Fruits and Vegetables

POTATOES ✓

CARROTS ✓

WATERMELON ✓

Desserts

COOKIES ✓

ICE CREAM ✓

You'll want to design everything.

Nothing will be safe. Not a memo. Not a note. Not the tags on every piece of luggage you own. With CorelDRAW® Graphics Suite II, we can't blame you for wanting to design every single thing that pops into your mind.

Reshape objects freely with pressure-sensitive Roughen and Smudge brushes. Mask complex shapes in one step with an ingenious new CutOut tool. Minimize and reuse design elements with new Symbols support.

All while you see exactly what you're doing in real time with the help of Live Effects. Even if what you're doing is getting a little carried away.

Corel PHOTO-PAINT®, Corel R.A.V.E., and the winner of over 350 industry awards, CorelDRAW®. Take a closer look at www.corel.com/graphicsuiteII or go to www.corel.com/resellers to find out where you can get it. Available for Windows® XP and Mac® OS X.



enjoy what you do.™

graphic design
photo editing
web graphics
animation

COREL™

COMPUSA
OFFICIAL AMERICAN BUYER TECHNOLOGY

MacMall

MAC
WAREHOUSE

MacConnection

Choose 79 at www.macworld.com/getinfo



Base model.



SaddleBag:
A casual approach to life or business, from one efficient, cool-looking container.

FlyLight™ Platinum:
You'll see the difference. Especially when you're in the dark.



Slim MicroSaver®:
Wherever you go, it helps ensure your laptop comes back with you.

PocketMouse Pro: The first and only palm-sized optical mouse with an ingenious retractable cord.

Fully loaded.

Isn't it great having options. Whether it's a 10-step telecommute (lucky you). Two glorious days at the satellite office. Or an off-site with your truly wonderful clients. Kensington products help ensure your work experience is, well, less like work. From the inventive PocketMouse Pro that shames other portable mice to our SaddleBag with the right amount of pockets for everything you move with — we extend the performance of your Mac®. And even though your job can be a trip at times, with our products — at least you'll enjoy the ride. Visit us at www.mobile.kensington.com or call 800-235-6708.

KENSINGTON.